

*Mr. James F. Rogers
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THE
SUPPOSED CURATIVE EFFECT
OF
OPERATIONS PER SE.

BY J. WILLIAM WHITE, M.D.,
OF PHILADELPHIA.

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*J. William White,
1810 S. Rittenhouse Sq., Phila.*

THE SUPPOSED CURATIVE EFFECT OF OPERATIONS *PER SE*.

By J. WILLIAM WHITE, M.D.,

OF PHILADELPHIA,

PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF PENNSYLVANIA; SURGEON
TO THE UNIVERSITY AND GERMAN HOSPITALS

FOR some time I have had the idea of collecting and analyzing the various cases recorded in the journals and elsewhere in which intelligent surgeons, having operated for the relief of symptoms depending upon a supposed pathological basis, have found no such condition, and yet the patient recovered not only from the operation, but from the original ailment. My attention was first directed to this subject by reason of my experience (which I shall presently summarize) with the operation of trephining for so-called traumatic epilepsy, but the investigation begun in that line finally came to include all such cases as I have just described. I shall consider, *A*: The recorded cases, and *B*: The possible explanations of the phenomenon observed.

A: It has been very difficult properly to classify the cases in question, but, roughly speaking, they may be divided into three groups in accordance with the anatomical seat of the symptoms or of the supposed disease. This will bring them under the following heads: I. Operations for the relief of nervous phenomena, as epilepsy, insanity, paralysis, etc. II. Operations for abdominal and pelvic disorders, as peritonitis, tumors, etc. III. Miscellaneous operations.

They may be again divided into (*a*) Those in which nothing whatever was found explanatory of the symptoms. (*b*) Those in which some departure from normal conditions was observed, but was so slight as to be apparently inadequate to explain the symptoms. (*c*) Those in which an apparently grave and irremediable condition was disclosed by an exploratory operation, but notably improved or altogether disappeared after mere inspection or handling, no further surgical interference having been thought justifiable.

OPERATIONS FOR VARIOUS CEREBRAL SYMPTOMS, CHIEFLY EPILEPSY, IN WHICH LITTLE OR NOTHING WAS FOUND TO ACCOUNT FOR THE SYMPTOMS, BUT EITHER MARKED BENEFIT OR CURE FOLLOWED. TABLE I.—TREPHINING.

Operator and Reference.	Age and Sex.	Supposed Cause, and Character of Fits.	Operation.	Conditions Found.	Result.—Time between Operation and Report.	Remarks.
J. Lucas Champion-niere.— <i>jour. d. med. et de chir., prat.</i> , Paris, 1888, 206.	40	M. Fell at age of 14 years; left painful spot on head. Had convulsions (epileptoid) and for 2 years great pain in head and vertigo.	Trephined.	Nothing abnormal; dura slightly adherent.	Cured.	Immediate cessation of pain and vertigo which did not return.
"	45	" Blow on head from hatchet at 8 years; no symptoms until 41. Since then, excruciating pains in left side of head. Tenderness in spots over head.	Trephined May 3, '86. Again Jan. 26, '87. Again July 1, '87.	No lesion found. No lesion.	"	Pain at that spot ceased, never to return. Pain at first disappeared, but returned again. Greatly improved.
"	55	" Fell 3 months ago. Great pain in head ever since.	Trephined Aug. 19, '88; again March 24, 1887.			Temporary relief; 2 months later vertigo returned. Complete relief for one year; later, vertigo returned, but was not troublesome.
"	"	" Blow on head 2 months ago. Since then, pain at point of injury, vomiting and vertigo.	Trephining.	No sign of fracture of skull.	Cured.	Complete relief which has been permanent.
"	29	" Recent contusion median line of head. Pain at middle of both parietals.	Trephined.	No local disease could be found.	Complete cure.	
Dr. S. N. Leo.— <i>Jour. Nerv. and Ment. Dis.</i> , N. Y., 1883, p. 271.	40	" Had 14 characteristic fits in 4 hours from blow received some time before (?).	"		Cured.	Fits gradually ceased; "free now for 2 years."
Mr. A. Poland.— <i>Med. Times and Gazette</i> , Sept. 26, 1868.	Boy.	" Severe epileptic form convulsions and unconsciousness following blow on head.	"		"	Recovered completely.

Horsley.—Brit. Med. Jour., April 23, '87.	4	M.	3 to 14 fits daily: almost complete paralysis in right arm and leg, semicomatose.	Trephined; brain explored by incision.	Nothing found.	abnormal.	Cured.	Rapid recovery; no harm from incision of brain; no fit for 1 month, then slight ones, none since.
Thos. Oliver, M.D.—Brit. Med. Jour., Feb. 4, 1888.	16	"	Epilepsy following blow; several fits daily.	Trephined.	No disease of bone or membranes. Shortly after bone was removed, the dura began to bulge, it was incised and a few teaspoonfuls of serum containing flakes of lymph were discharged.		Cure for 6 months.	No fits for 6 months, after which slight relapse. attributed to bad hygienic conditions.
Peter de Marchettis.—Quoted by Guthrie.			Epilepsy.	"		No disease found.	Cured.	
Marechal—Quoted by Guthrie.			Epilepsy of several years standing.	"		Nothing found.	"	
Alfred Poland, F.R.C.S.—Med. Times and Gazette, Sept. 26, 1868, p. 360.	14	"	Head struck by end of wooden trestle; no wound was made. Headache followed; 7th day had twitchings of muscles of hands; this continued off and on for about six weeks when he began to have fits and at times delirious and furious, and violently convulsed.	Trephining.	Everything normal. No depressed bone, no fracture, no appreciable disease of scalp bone or dura.		Cured.	Quite well, no more fits.
T. O. Edwards.—Leavenworth Med. Herald, 1870-1, iv, 8, p. 1.	47	"	Fell from carriage striking head; scalp wound only. Two years later, first convulsion, and continued in spite of medication.	Trephined.	Bone removed was thickened 1 to 3 lines.		Cured of fits. months.	Later paralysis came on and death 4 months after operation.
Dr. Eastman.—St. Louis Med. & Surg. Jour., 1881, xl, 572.	28 ?	"	Light blow on head, stunning him for a time. One year later appeared to have apoplectic fit, leaving hemiplegia. Fits increased in spite of all the treatment; as many as 16 or 18 daily.	"	Small external depression was found on same side of head as paralysis, supposed to be seat of blow. Trephined head; nothing abnormal found.		Cure.	Paralysis cured in 2 or 3 weeks and in 2 or 4 months entirely well. Never had a fit since.

TABLE I.—CONTINUED.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result — Time between Operation and Report.</i>	<i>Remarks.</i>
Benj. W. Dudley.— Transyl. M. J., '28, i, p. 19.	Middle age M.	Blow on head 15 years ago; intellect impaired; fits began 2 years later.	Trephining.	Bone and dura normal, but dura seemed to have fluid beneath. Dressing removed on 5th day; fluid all ab- sorbed.	Improved. Some weeks.	Result very flattering for 2 weeks, but on account of indulging a craving appe- tite had recurrence, but milder and less frequent.
D. B. Lees and Edw. Bellamy.—Tr. Clin. Soc., London, '80-1, '81, xiv, 12.	Boy.	Blow on head with poker at 7. One year later had fits; fits at times very frequent.	"	Bone natural but dura bulged.	Free from fits for 8 weeks.	Recurrence later.
Dr. Gay.—Bost. Med. and Surg. Jour., '82, cvi, 370.	16	Fell, striking head; no frac- ture; soon began to have fits, but free for 3 years. Two months ago without fresh cause began to have op- pression and tenderness in certain spot in head. Could not sleep.	Trephining.	Bone and dura both normal.	Cured. Eight mos.	No fits since operation.
Mr. Bryant, reported by J. T. Dickinson —Bost. M d. and S. Jour., '73, i, 799.	16	Epilepsy 4 years Fell, strik- ing head, causing scalp wound only.	"	Skull thickened; one- fourth inch at superior border; five-sixteenths inch at inferior bor- der.	Much improved. Four months.	Free from fits unless some unusual cause may excite a slight one.
Editor's Table.—San Francisco M. Press, '60-1, ii, 228.	28 ?	Injury on head 7 years ago. Mental faculties nearly de- stroyed, right arm nearly paralyzed and leg weak. Fits since injury, and unable to follow his work.	"	Inner table of skull nor- mal and not at all de- pressed.	Much improved for a time. Some weeks.	Free hemorrhage from scalp. Patient much improved at once. 7th day, secondary hemorrhage arrested only by deep stitches through flaps. This caused old symp- toms to return. Bleeding continued for 3 weeks. Pa- tient best at times of most bleeding. One week after, hemorrhage stopped, pa- tient relapsed in former condition.

Dan. Ayres.—Trans. Brooklyn M. Chir. Soc.; Med. & Surg. Reporter, Phila., '61, vi, p. 356.	9	M.	Ten months before struck with stone on right frontal eminence causing lacerated wound; symptoms of concussion. In 2 months change in disposition. Spells of violent temper and petit mal.	Trephined.	Bone and dura appeared absolutely normal.	Cure. Four and a half months.	Convulsions only on 3rd or 4th days [nurse had wrongly given him full diet.] Regained former disposition.
J. H. Wharton.—Dublin Hosp. Gazette, '59, n. s. vi, 202.	35	"	Fell from wagon on head. Fits, intense pain in head, giddiness staggering.	"	Bone normal.	Relieved. Four weeks.	No fit while in hospital, after operation, 4 weeks. Pain relieved at once, when button was removed.
Jas. F. West F.R.C.S.—Med. Chir., Tr., '79; Lond., 1880, lxiii, p. 23.	14	F	Struck on forehead by stone. Become drowsy and forgetful; less intelligent. Fits for past year. Fit 4 days before operation, and has not spoken since. Urine and faces passed involuntarily.	Trephined over slight depression.	Button showed depression of outer table and compression of diploe. Inner table bore no evidence of fracture.	Improved. Two years.	Mental condition improved and free from fits.
T. G. Richardson.—New Orleans Jour Med, '68, xxi, 494.	12	M.	Struck in middle of forehead; no fracture. Fits for several months. Cerebral functions slow and uncertain; stupid.	Trephined.	Disc of bone appeared perfectly normal and so did dura to Dr. Richardson, but Prof. Stone thought it a little opaque and thickened. Serum in arachnoid which burst through scratch in dura.	Cured. Two months.	No spasms after first night.
W. Stone.—New O. Med. and Surg. J., '58-9, xv, 433.	53	"	Frequent fits some months.	"	Nothing found, but relieved of fits for a time. Trephined again and had no fits for a year or two.	Improved. One to two years.	After second trephining no fits for 1 year, then recurrence. A third operation revealed dura much thickened and firmly attached.
Saxtorph.—Jour. de méd. et de chir., prat., '82, p. 163.	20	F.	Healthy. Slight bump on head, skin not broken. Nine months later first fit; recurred with frequency. Medical treatment of no avail 21 months later.	Trephining.	Operation area sensitive, nothing pathological found. Antiseptic dressings.	Cured. 3 weeks.	
Sayre.—M. and S. Rep., '61, vi, 358.		M.	Blow in occipital region, followed by epilepsy which resisted all medical treatment; confirmed epileptic.	Trephined.	Everything absolutely normal.	Cured. Almost one year.	

TABLE 1.—CONTINUED.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, Duration and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result. — Time be- tween Operation and Report.</i>	<i>Remarks.</i>
Dr. Andrew Otterson Case of Dr. Buck.— M. and S. Rep., '61, vi, 358. Louis Bauer, M.D., '26 M.R.C.S. St. Louis Med. and Surg. Jr., '70, n. s., vii, 205.	M.	Epilepsy following injury.	Trephined.	Everything normal.	Cured.	Remained well "long time."
Morel of Besancon.— Quoted by Guthrie, Injuries of head af- fecting brain, p. 82. "	"	Struck anteriorly to right pari- etal protuberance with axe. Scalp wound. Two years later epileptic fits, several daily.	"	Not slightest evidence of previous injury; dura also healthy.	Cured. Two mos.	Before operation mind im- paired. Muscular power be- low par; left leg weaker. To all intents and purposes patient completely cured, both of epilepsy and other cerebral symptoms; can walk and run.
M. Walther.—Quoted by Guthrie, Injuries of head affecting brain, p. 82.	"	Epilepsy for 6 months.	Trephining.	Nothing abnormal.	Cured.	
M. Walther.—Quoted by Guthrie, Injuries of head affecting brain, p. 82.	"	Epilepsy for 12 months.	Trephined.	No disease found.	"	
Lewis A. Stimson.— Personal communi- cation.	"	Blow on head from stone.	"	Nothing abnormal found.	"	
Adult. F.	Adult. F.	Fell from second story win- dow; became insane and re- mained so several weeks.	"	Nothing found.	"	Recovered senses in a day or two and discharged cured.
Guthrie.—Injuries of head affecting brain, p. 86.	"	Fixed pain in head following blow; gradually lost power of right arm and leg; arm became rigid, vision and hearing imperfect, memory affected.	Trephined and ex- plored brain 1885- 81.	Bone and dura both free from disease.	"	In 3 days paralysis had dis- appeared, sight and hearing became normal and she left, cured.
Referred to by Wm. Pepper.—Dr. J. Forsyth Meigs's Penn. Hosp. Rep., vol. ii, '69, p. 181.	Lad. M.	Epileptiform convulsions and unconsciousness following blow.	Trephined.	No discoverable lesion of bone or dura.	"	

Rhodins.—Quoted by Guthrie.	Fixed pain in head from blow. Trephined.			Cured.	"Cured after several years of great suffering."
M. Bouchery.—Quoted by Guthrie.	Dull pain in head add hemiplegia.			"	In 56 days patient was quite cured.
D. S. N. Leo.—Am. Jour. Neurol. and Psych. vol. ii, '83, p. 36.	Two cases. Epilepsy.	Trephined 3 times.		Nothing abnormal found.	Both cases benefitted and resumed work.
Andrew Blake, M.D., M.R.C.S., London M. and Phys. Jour., '26, lv, 103.	M. Blow on right parietal bone with fist; no division of integuments. Persistent headache; epilepsy and left hemiplegia.	Trephined.		Skull thick; but little adhesion of dura; no irregularity.	Paroxysms at once mitigated and ceased altogether in a few hours, and regained power in left side in less than a month.
Dr. Kirkwood.—Br. Med. Jour., Lond., '78, ii, 55.	" Four years ago fell and was stunned. Character changed and 2 years later had fits.	"		Skull and cortex entirely normal.	Few fits decreased in frequency. Trephined again and fits still further decreased, but temper worse.
Mr. Whitehead.—Br. Med. Jour., '86, i, 19.	" Fell in quarry and sustained fractured skull (compound.) Constant headache, and for 7 weeks epileptic fits.	"		Nothing abnormal was observed.	Cured. 8 months. Only 1 fit since operation, and free from headache and depression.
W. J. Van Ernan.—Kansas City, '85, vi, p 470.	" Fell under wheel at 12 years of age; wheel passed over head. Thirty-four years later fit. Six months later and, etc. Depressed cicatrix; fits for 4 years.	"		Pericranium perfectly healthy, as was also the dura. A little apparent thickening of bony wall.	1 year. Had bromides before and after operation.
D. Macdonald.—Jour. Neurol. and Ment. Dis., N.Y., '86, n s. ix, p 488.	" Fell down stairs at 6 years of age. Fits began at 16 years. Attacks nocturnal, but evidenced by bitten tongue, etc.	"		Inner surface of bone smooth and non adherent, and dura not wounded.	"
Reported by A. H. Bennett, Operation by Mr. Gould.—Br. Med. Jour., '87, i, 12.	" Blow on head 6 years previously; fits ever since, averaged one per week.	Trephined Aug. 25, 1885.		Portion of bone removed was perfectly normal, as was also the dura, a circular portion of which was incised. Cortex was normal and exploration in 3 directions 1 inch revealed nothing.	Cured. 5 months. No fits since operation.

TABLE . I.—CONTINUED.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result. — Time between Operation and Report.</i>	<i>Remarks.</i>
Agnew and White.— Case Book.	42	M. Fell from horse during war. Fits began some time after. Increasing in severity. Occasional maniacal spells. Scar over left parietal region.	Trephined.	Nothing abnormal.	No fits for 3 months. Then 2 in close succession. Then none for 7 months. Ten months.	In all these cases of Dr. Agnew and myself the bromides were given in moderate doses after the operation; but in all of them the bromides had signally failed before operation was attempted.
"	23	" Blow on head from blunt weapon during a fight.	"	"	Cured. ? 18 mos.	No fits for 18 months.
"	13	F. Wound of scalp from fall against a clay flower pot at age of 4 or 5, followed by epilepsy and gradual mental failure. Imbecile at time of operation.	"	"	Relieved. 3 mos.	No fits, although previously they were of daily occurrence. Patient regained intelligence enough to give notice of her desire to evacuate bladder or bowels, acts which she had performed regardless of time or place before the operation.
"	29	M. Wound of scalp and supposed fracture from brick falling on head from a height, ten years previously.	"	"	Cured. ? 2 years.	Fits appeared 3 years after accident; were increasing in number and severity. Averaged 1 in a week or ten days. None for 2 years after operation.
"	30	" Scalp wound with apparent depression.	"	"	Relieved. 4 mos.	Fits before operation averaged 4 or 5 weekly. After operation 1 at end of 3rd month; two during fourth month.
"	39	" Gunshot wound of head; supposed fracture.	"	"	" 9 mos.	Fits before operation once in two or three weeks, but very violent and severe. After operation 1 in several weeks. One at end of 3 months.

Agnew and White.—34 Case Book.	M.	Scalp wound with supposed fracture.	Trephined.	Nothing abnormal.	Relieved	2 mos.	Fits before operation from 1 3 daily. None up to time of losing sight of patient.
"	"	Scalp wound received at age of 11. Followed by a period of unconsciousness.	"	"	"	6 weeks.	Fits before operation very frequent and violent, some- times 3 or 4 daily. After op- eration none for six weeks, while patient was in hospi- tal.
"	"	Fracture and trephining at age of 15. Fits begun at 17. Increasing in number and severity.	"	"	"	11 mos.	Fits before operation 1 to 2 weekly. After operation none for four months, then 1 to 2 monthly. Still under observation.

TABLE II.—LIGATURE OF BLOOD-VESSELS.

Operator and Reference.	Age and Sex.	Supposed Cause, Duration and Character of Fits.	Operation.	Conditions Found.	Result.—Time be- tween Operation and Report.	Remarks.
Alexander.—Brain. London, 1882, v, 178.	F.	Good family and personal his- tory. Fits began five years ago without known cause. Very frequent, lately as many as 12 in one night. Memory failing.	Left vertebral tied Mar. 1, 1882. Left vertebral tied March 29, 1882.	Alexander remarks that in the 21 cases alluded to in this paper, 3 have been quite well for nearly a year; 9 others so free from fits and for such a space of time, it may be said a cure has resulted, or is likely to result; and 8 have improved in so many respects, or are improving, that the operation would be justifiable if no better results were obtained. The one who died in a fit, was an accident.	Improved. 2½ mos.	June 5th Improvement very decided. Only 5 fits in last 17 days, and those not se- vere. Stupidity lessened.
"	"	First fit four years ago, while at play. Nineteen fits in last seventeen days.	Right vertebral tied March 1, 1882; im- proved for a time, but recurred. Left vertebral tied April 26.		"	From May 9th to June 5th only 3 fits. Ice bag applied to spine May 9th, and re- tained since. Mental con- dition improved.
"	M.	Averaged 35 fits a month. Fits since 5 years of age, brought on by fright it is alleged.	Both vertebrals tied March 29, 1882.		"	Twenty fits in April, 15 in May, and up to June 6th, only 1. Ice bags to spine from May 6th. Has lost to considerable extent form- er stupid look.

TABLE II.—CONTINUED.

<i>Operator and Reference</i>	<i>Age and Sex.</i>	<i>Supposed Cause, Duration and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result — Time be- tween Operation and Report.</i>	<i>Remarks.</i>
Alexander. — Brain. London. 1882, v, 178.	23 M.	First fit at 14 years, caused by fall; depressed, scar at back of head. Wound is not much affected. Averaged 20 fits per month.	Left vertebral tied July 31, '81. Right internal carotid tied July 27.		Improved. 1 year.	Eleven fits in August, 5 in September, and up to Oct. 8, two slight ones; rest of October, 1; up to Nov. 16th, 1 and up to present's, aver- age, per month, 12. Fits milder and temper improv- ing.
"	22	Fits for eleven years, caused by being beaten by his father; average number 15 per month.	Left vertebral and left common caro- tid tied Aug. 31, 1881.		" 4 mos.	Six fits in September, 8 in Oc- tober, 2 in November, and up to Dec. 20, 2 more. Died from suffocation during a fit.
"	26	Fits since childhood, average 10 per month. At times maniacal as fit is passing off	Left vertebral tied Aug. 17, '81. Right vertebral tied Jan. 11, '82.		" 9 mos.	Mental condition improved and maniacal attacks dis- appeared. Fits lessened af- ter first vessel was tied. 3 fits in February, 10 in March 8 in April, 6 in May; much milder.
"	29	Fits since 13 years of age; average 16 per month. Aura begins in right hand and arm with flexion. Limb became somewhat rigidly fixed in this position.	Right vertebral tied Jan. 25, '82. Left vertebral tied Feb. 8, '82.		" 4 mos.	Three fits in February, 7 in March, 10 in April, and 6 in May. Much milder; mental condition improved; power in arm returned.
Alexander. — Medical Times and Gazette, London, 1882, i, p. 250.	7	Slobbering, howling idiot. Fits begin at 20 months and have been increasing since Twelve fits in last twenty days.	Left vertebral tied Nov. 21, '81. Right vertebral tied Dec. 28.		Cure.	Free from fits after 2nd oper- ation up to middle of Feb- ruary; up to May 31st only 1 fit, although a very un- comfortable home.
"	17	Fits for years in Dingle Mount institution; 289 fits in 1881.	Right vertebral tied Dec. 21, '81.		" 6 mos.	No fits until end of 5 months, when a paroxysm of anger caused some kind of fits; none since.

Alexander.— <i>Medical Times and Gazette</i> , London, 1882, i, p. 250.	18	M.	Hydrocephalus at 18 months, and struck with ruler on head at school. First fit at 14 years. Oct. 1-12, 13 fits.	Left vertebral tied Oct. 12, '81. Right vertebral tied Dec. 8.		Cure.	2 mos	Fits reduced to one-half former number after first operation. No fits for five weeks after second operation, until news of father's death caused few slight fits; then again free for over a fortnight when he passed from observation.
"	31	F	Fits began at 2 years, following whooping cough; then ceased and reappeared at 14 years. Mother died of fits. Average 6 fits a week.	Right vertebral tied Jan., 18, '82.		Improved.	1 mo	Up to Feb. 20 had 4 fits. Refused to have other vessel tied.
F. C. Pecton.— <i>N. Am. Med. and Surg. Jour.</i> , 1827, iv, 83.	22	M.	Epilepsy for over 9 years. No injury. All usual remedies tried.	Left common carotid tied.		"	10 days.	But 2 fits in ten days, being related at prospect of cure, gave himself up to intemperance and fits returned, and doctor gave up case.
C. Angell.— <i>N. Western Med. and Surg. Jour.</i> , Chicago, '87, xiv, 446. page 447.	20	"	Fits 3 or 4 years; seldom at first, but increasing in frequency and severity; 15 or 20 day of operation.	Right common carotid tied.		Died on 7th day.	7 days.	Had no fit or symptom of it after operation till death.
"	40	"	Fits for 7 years. Last 3 years were severe and frequent; almost daily; incapacitated for work; mind affected.	Right common carotid tied July 8.		Improved.	40 days.	Only 4 fits since operation; is attending to business and improved in every way.
Wm. Alexander.— <i>Medical Times and Gazette</i> , London, 1881, ii, p. 598.	17	"	November, 1879, 16 fits; December, 1879, 4 fits; Year of 1880, 183 fits; first half 1880, 147; longest period of freedom 5 weeks. Supposed to be caused by fright.	Tied left vertebral July 6, 1881.		Cure.	3½ mos.	August 21, left hospital and went to church. Excitement caused fit. Was given bromide and belladonna and put to bed. Had several up to August 29. Discharged to August 28. Oct. 27th, has been working and no fit since. July, '82, still free from fits and at business. (Later report).
"	25	"	Fell and struck head 5 or 6 years ago. A week later, had fit; more and more frequent and severe lasting 5 to 20 minutes.	Tied left vertebral Aug. 17, '81.		"	2½ mos.	Had fit after operation, and 2 next day and day after. None since. Left ulnar nerve had been stretched July 6th without effect. No fits July, 1882. (Later report).

TABLE II.—CONTINUED.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result.—Time between Operation and Report.</i>	<i>Remarks.</i>
Wm. Alexander, M.D. F.R.C.S. Medical Times and Gazette, London, 1881, ii, p. 600.	9	M. Epileptic from birth and idio- tic to a certain degree. September, 1880 to June, 1881, 160 fits.	Left vertebral tied July 13, '81.		Cure.	Occasional fits up to Aug. 10. None since. July, 1882, no fits since. (Later report).
Alexander.—Brain. London. 1882, v, 170.	24	F. Menses ceased one year ago, and fits soon began. 45 daily.	Right vertebral tied Jan. 18, '82. Left vertebral tied Feb. 2.		Improved. 5 mos.	After first ligature fits contin- ued, but milder. Vessel was small. 6 days after, second ligation, and occasional fits since. March 16, shortened round ligaments for retro- version, few slight fits. No fits after leaving hospital June 20th. Menstruation returned.
"	18	" Fits for 5 years, following severe news of her father's death; petit mal daily; se- vere attack weekly.	Both vertebrals tied Feb. 15, '81.		" 4 mos.	June 6th, few slight fits.
"	25	" Fits' since 13 years of age; almost daily.	Both vertebrals tied March 23, '81.		Cured. 2 mos.	Middle of May, no fits since operation.
"	18	" Hip disease since 6 years of age. Six months ago first fit; average, one every sec- ond day.	Both vertebrals tied Feb. 15, '82.		Improved. 3 1/4 mos.	No fit until March 6th. Two fits in March and 3 in May June 1st, 1.
"	25	" Fits. Seven to twenty-seven monthly.	Right vertebral tied March 16. Left vertebral tied April 12.		" 6 weeks.	Three fits up to May 25.
"	15	" First fit at 15 months; began at 7 years of age; as many as twenty daily.	Both vertebrals tied April 5.		Cured. 2 1/2 mos.	April 15 and 16, two slight fits. June 20, no fits since.

Alexander.—Brain. 21 London. 1882. v. 178.	F. Fits since 8 years, through fright. Fell at 11 years and cut head. After this became an imbecile and did not re- cognize anyone. 582 fits in 1881.	Left vertebral tied Feb. 2, '82.	Improved. 3 mos.	No fit for a week, and during next fortnight only 7. Up to May 1st, averaged 11 fits a month from 48.5 and these are lighter. Brighter look- ing and takes more notice.
J. R. Preston, Esq.—25 Tr. M and Phys. Soc., Calcutta, 1831, v, 359.	M. Severe epileptic fits every two weeks for 5 years.	Ligature of common carotid.	Cure. 1 year.	No fits since operation.
V. Mott, jr.—N. Y. Med. Gazette, 1859, i, 120.	" Incipient epilepsy.	Common carotid tied.	" 5½ mos.	No fit since.
J. R. Wood.—N. Y. 37 Jour Med., 3 s., vol. iii, 1857, p. 22.	" Fits for 8 years.	Ligature of common carotid.	Much im- proved. 6 years.	Fits lighter and less frequent. Could attend to business.
T. H. Hamilton, jr., 18 M.D.—Buffalo Med. Jour., 1846-7, ii, 119.	" Fits from childhood; from 12 years fits became more fre- quent, one or two daily.	Tied right carotid Aug., 1838. Left carotid tied Mar., 1839.	Cure. 2 years.	First ligature diminished fits in force & frequency. None since second ligature.
Z. Pitcher, M. D.—22 Penins. Jour Med., Ann Arbor, Mich., 1853, i, p. 8.	F. Fits since 13 years old. Aura first began in right forearm, but gradually traveled up to point of omo-hyoid. At times 24 fits in twenty-four hours.	Common carotid tied below omo- hyoid.	Cure; last- ing 2 yrs. 3 years.	For two years after operation, entirely free from fits, but past year, if exercise is omitted and any unpleasant mental disturbance, has petit mal, but never loses consciousness.
J. R. Brown, Ass't 22 Surgeon U.S. Army. —Am. Jour. Med. Sci., Philadelphia, n.s. xxviii, p. 415.	" Epilepsy since 17 years old. Right common car- otid tied June 5, 1848. At times as many as 24 in twenty-four hours.	Right common car- otid tied June 5, 1848.	Cure. 5 years.	Relief immediate. For over three years exempt from seizure of any kind. Within past year any unusual men- tal disturbance may cause petit mal, but never loses consciousness and mental condition improved.

CLASS I.—OPERATIONS FOR THE RELIEF OF NERVOUS PHENOMENA.

I may begin the consideration of these cases with a brief statement of my personal experience.

During the past five years Dr. D. Hayes Agnew and I have trephined in 15 cases of supposed traumatic epilepsy. All but one recovered from the operation. In one a bullet was found imbedded in the brain substance. In another an irregular portion of the internal table was dissected out from beneath the dura mater to which it was attached by cicatricial adhesions. In another no spicules of bones projected from the internal surface of the button removed, and an adjacent thickened portion was taken away by the rongeur. In two marked thickening and sclerosis of the cranium in the region of operation were observed. In the fatal case death occurred from suppression of urine, possibly a secondary effect of the etherization. The patient was an imbecile and a confirmed drunkard as well as an epileptic, and was really not a fit subject for operative interference. His friends were notified that it was a great risk with but slight chance for improvement. In the remaining cases nothing abnormal was seen. It was the effect of operation upon these latter cases which, as I have said, led to the preparation of this paper. Without exception they were markedly improved by the trephining, in two instances even to the point of apparent cure, no return of symptoms having been observed for 18 months and two years after the operation.

In the other 7 the results were strikingly favorable, convulsions disappearing for weeks or months, although previously of more than daily occurrence. These cases are included in the table which I present herewith, which is not intended to be complete or exhaustive, but embraces, I think, an interesting variety of extraordinary results from operations which proved to have no justification in any discoverable pathological condition.

A few illustrative cases may be selected from the 154 contained in the table:

Dr. Eastman¹ reported the case of a man who sustained a light blow on the head, stunning him for a time. One year later he had what appeared to be an epileptic fit, leaving him hæmiplegic. Epileptiform convulsions appeared and increased in spite of all treatment, until he had as many as 16 or 18 daily. Trephining was done, but with the exception of a small external depression on the same side of the head as the paralysis, nothing abnormal was found. The paralysis was cured in two or three weeks, and in four weeks he was entirely well. He never had a fit up to the last report, eight years after operation.

Sayre² has reported the case of a man who received a blow in the occipital region, followed by convulsions which resisted all medical treatment. He became a confirmed epileptic. He was trephined, and everything was found absolutely normal. Up to the time of report, one year after operation, he seemed cured.

S. E. McKinley³ has reported the case of a boy, æt. 16, who, after having for years been epileptic, fell through a bridge and had one testicle crushed. It was removed and he had no fits subsequently, the last report being six or seven years after the operation.

W. H. Cane⁴ has reported the case of a man, æt. 24, who had had fits for seven or eight years, averaging three times a week. The operation of tracheotomy was performed and he had no fits afterwards, last report being four months after the operation.

Graham Fitch⁵ has reported the case of a woman, æt. 21, who, at the age of 7, had fallen, striking her head. She was unconscious for a time. Depression in the parietal bone could be felt. An incision was made in the scalp over the depression, one inch in length, and kept open three months. She had one fit immediately after the operation and had none afterwards, the last report being one year after the operation.

Dr. Parish⁶ has reported a case of a young man, æt. 20, who struck his head against a gas-pipe. He had a few fits for a few days after the accident, and these fits returned after eight months. An incision

¹St. Louis Medical and Surgical Journal, 1881, vol. xl, p. 572.

²Medical and Surgical Reporter, 1861, vol. vi, p. 358.

³American Medical Gazette, 1855, vol. vi, p. 295.

⁴London Lancet, 1851, vol. ii, p. 35.

⁵American Practitioner, Louisville, Ky., 1887, vol. xvi, p. 212.

⁶Philadelphia Medical Examiner, 1843, vol. ii, p. 799.

was made through the tender spot on the scalp and a few issue peas were introduced and retained by plaster. There had been no return of the fits up to the date of the report, two to three years after the operation.

Dr. Agnew and I have recorded the case of a man, æt. 23, greatly epileptic, who, years before, had received a blow on the head from a blunt instrument during a fight. Trephining was done, and nothing abnormal was found. He had no fits for 18 months after the operation.

We have also notes in the a case of a man, æt. 29, who had received a wound of the scalp and supposed fracture from a brick falling on his head from a height ten years previously. Fits appeared three years after the accident. They were increasing in number and severity, and averaged one in every week or ten days at the time of operation. He was trephined, and nothing abnormal was found. No fits have occurred up to the present time, two years after operation.

T. H. Hamilton⁷ has reported the case of a man, æt. 18, who had fits from his childhood. From 12 years the fits became more frequent, averaging one or two daily. The right common carotid was tied August, 1838, and the left carotid March, 1839. The first ligature diminished the fits in force and frequency. He had no fits after the second ligature, and remained cured up to last report, two years after second operation.

J. R. Brown⁸ has reported the case of a woman, æt. 22, who had been epileptic since she was 17. At times she had as many as 24 in 24 hours. The right common carotid was tied June 5, 1848. Immediate relief followed. For three years she was exempt from fits of any kind. Then any unusual mental disturbance caused petit mal, but she never lost consciousness and her mental condition improved up to last report, five years after the operation.

The tables may be summarized as follows:

In 56 cases of trephining for epilepsy, nothing abnormal was found to account for the symptoms; 19 cases were reported in 6 months or less after the operation; 11 cases were reported from 6 to 12 months after the operation; 6 cases were reported from 1 to 2 years after the operation; 1 was reported 8 years after the operation; 25 of the above-mentioned cases were re-

⁷Buffalo Medical and Surgical Journal, 1846-7, vol. ii, p. 110.

⁸American Journal of the Medical Sciences, n.s., vol. xxviii, p. 415.

ported as cured; 18 were reported as improved. In 3 of the cases it was mentioned that relapse occurred later.

In 30 cases of ligation of blood-vessels for epilepsy, 23 cases were reported in six months or less after the operation; 3 cases were reported from 6 to 12 months after the operation; 1 case was reported 2 years after the operation; 14 of the above-mentioned cases were reported as cured, 15 were reported as improved; 1 died 7 days after the operation. The right common carotid was tied in this case, and no fit occurred after the operation.

In 10 cases of castration for epilepsy all were reported as cured; 1 case was reported 3 months after operation; 4 cases were reported more than 2 years after operation; in 5 the time when reported was not mentioned.

In 9 cases of tracheotomy for epilepsy, 8 were reported 5 months or less after the operation; 1 was reported 2 years after the operation; 2 of these were reported as cured; 6 were reported as improved; 1 was reported much improved, but died 2 months after operation.

In 24 cases of removal of the superior cervical gangliæ of the sympathetic nerve, 6 of these cases remained well at the end of 2 years; 10 were improved; 5 remained unimproved; 2 died soon after the operation, but not from its direct effects. One was not heard from.

In 6 cases of incision of the scalp for epilepsy, nothing was found to account for the symptoms; 3 of these cases were reported as cured at the end of 3 months or less; 1 was reported as cured at the end of 1 year; 2 were reported as cured at the end of 2 years; 2 other cases, almost similar, are reported as cured.

Twelve cases of epilepsy are reported as cured by such operations as stretching of the sciatic nerve, excision of musculo-cutaneous nerve, cauterization of the larynx (2), circumcision, application of a seton to back of neck (4), tenotomy of external recti, burning of scalp, puncture of heart, etc.

Thirteen cases of spontaneous or accidental cures of epilepsy are also reported at a time varying from 2 months to 5 years

after the traumatism, which was a fall, a burn, a wound, an amputation for intercurrent injury or disease, etc.⁹

Many of the cases contained in the table are, I admit, open to the serious objection of having been reported too early. I have included them, however, as the benefit following operation was so marked and unmistakable as to be worthy of investigation in spite of its possible want of permanency. Setting them aside, however, we still have left a large number of cases in which there was apparent cure at times varying from three months to three years after operation.

The explanation of these cases is scarcely to be found in the theory that some source of reflex irritation has been removed.

It is well known that in many epileptics in whom a distinct aura exists, if there be induced an interruption of nervous transmission between the skin and the nerve centres, the paroxysms are greatly diminished, or may even disappear.

Dr. Brown-Sequard¹⁰ has collected a number of such cases in which either a diminution of the fits, or, as was more frequently the case, an entire suspension of them took place after the ligature of a limb or finger, section of one or many nerves, amputation of a limb or other part, elongation of the muscles which were the seat of the aura, or cauterization by various means of the part of the skin in which the aura originated.

For many years operations based on this fact have been performed with varying but sometimes surprising success. Billings¹¹ has given a résumé of a number of such cases, including cures by lithotomy, amputation of fingers and toes, nerve section, enucleation of the eye and removal of cicatrices. I have myself had four cases in which the latter operation was followed by such marked benefit¹² that it occurred to me that

⁹Prof. H. C. Wood has told me that having noticed the cure of epilepsy in a domestic animal as the result of a serious fall upon the head from a height he subsequently produced cures in animals similarly affected by inflicting heavy blows with a blunt instrument upon the occiput.

¹⁰"Researches on Epilepsy," etc.

¹¹Cincinnati Lancet and Observer, 1861, p. 339.

¹²In one case, a patient of Dr. Chas. K. Mills, the recovery was permanent and complete, several years having elapsed since the operation.

possibly much of the good effected by trephining in traumatic cases might be brought about with equal certainty and more safety merely by raising the portion of the scalp containing the cicatrix. This I have done in some very recent cases, with the usual result of a temporary disappearance of the convulsions.

The accidental cures of epilepsy, 13 instances of which are included in the table, and the cases of relief from fixed pain afforded by simple trephining, are almost equally striking in the absence of any comprehensible relation between the traumatism and the disappearance of symptoms.

Passing from the cerebral to the spinal region, I will cite only one illustrative case.

A male patient, æt. 55, was attacked December 25, 1887, with severe pains in his arms and shoulders; three or four days later there was weakness of the thighs, spreading rapidly down the legs to the feet, and upward to the nipple line. In eight days there was absolute paralysis of the parts involved, including both sphincters, while at the same time the paralyzed parts became the seat of profound anæsthesia. Girdle pains developed, bed sores made their appearance; percussion of the spine over the third and fourth vertebræ became painful; the reflexes were exaggerated, and slight blows on the head in the direction of the spinal axis gave rise to frightful exacerbations of the girdle pain. These symptoms developed and increased in severity for ten months; all internal therapeutics were exhausted, and it was finally decided to trephine the spine, although one distinguished neurologist was positive we were dealing with a case of Landry's paralysis and that operation was unjustifiable. Dr. Dercum, in whose practice the case occurred, agreed with me that an exploratory operation was indicated, and I, accordingly, on October 17, 1888, removed the spines and laminæ of the first five dorsal vertebræ, opened the slightly thickened dura, separated some firm adhesions to the subjacent pia mater, explored the cord with my finger, and then having quite failed to discover any serious pathological changes, closed the wounds in the dura and soft parts. The girdle pain had entirely disappeared by the following day, sensation began to return in the feet the day after,

voluntary motion in the toes on the eighth day, and so one symptom after another disappeared, until the patient completely recovered, and is now earning his living by manual labor.¹³

Mundé¹⁴ has reported a case in which after removal of the ovaries and Fallopian tubes, symptoms of chronic myelitis of the lumbar cord entirely disappeared, although previously the patient had had an apparent hemiplegia and had for seven years been unable to move even the toes of the left foot. In two months after the operation she was able to walk perfectly and her recovery seemed complete and permanent.

Dr. W. R. Gillette¹⁵ has recorded the case of a German girl who had been in many hospitals for severe dysmenorrhœa, pelvic pains, and epileptic seizures. She professed to live without eating, but it was found that she took bread in some surreptitious manner. The nurses watched her very closely and concluded that she was a hystero-epileptic. There was prolapse of the ovaries. The patient was very anxious to have an operation done, and her mother stated that doubtless she had been a real sufferer for several years. Dr. Gillette thought it a good case in which to try the influence of mind over matter, and made all the necessary preparations for oophorectomy, placed the patient upon the operating table, made an incision into the subcutaneous fat of the abdominal walls, and closed the wound. The patient improved wonderfully after the pretended oophorectomy.

I shall reserve my comments on these cases until I have completed my records, and shall pass on to the next group.

CLASS II.—ABDOMINAL AND PELVIC DISORDERS.

We may begin one list of these cases with a resumé of Mr. Tait's extraordinary experience. He says¹⁶ that he has more than once drawn attention to the astonishing disappearance of tumors, often of large size, after a mere exploratory in-

¹³ANNALS OF SURGERY, June, July, 1889, July, 1890.

¹⁴Amer. Jour. Obstetrics, Vol. 17, 1884, p. 1162.

¹⁵Amer. Jour. Obstetrics, Vol. 17, 1884, pp. 1164-5.

¹⁶Edinburgh Medical Journal, November, 1889.

cision. They have been chiefly cases of diseases of the liver, spleen and head of the pancreas, but he has seen others where the exact site of origin of the growth could not be accurately ascertained, disappear equally.

He gives the following illustrative cases:

A woman, *æt.* 30, had a tumor, supposed to be ovarian. On section it was evident that a mistake had been made. It dipped into the pelvis as a glutinous mass but had no connection there. Traced upward it was found continuous with the substance of the liver, to which it was attached by a pedicle 6 or 7 inches in width. An aspirating needle brought only a drop or two of bloody fluid. The wound was closed. She steadily improved, the tumor subsided and five years later was the size of a man's fist.

In another case of violent hepatic pain, jaundice, etc., the liver was found covered with small seed-like bodies which were thought to be miliary abscesses. Nothing was done. She immediately improved; and entirely recovered.

In another with hepatic symptoms. large, hard nodules of the liver were found and appeared to be undoubtedly carcinomatous. No attempt at removal was made. Recovery was prompt and complete.

In another a large indurated immovable mass in the position of the head of the pancreas was thought to be unquestionably cancer. The history and general appearance of the patient corroborated this diagnosis. Nothing whatever was done, but in a few days the patient began to improve and in seven weeks not a trace of the tumor was to be felt. She has remained in robust health.

Four times Tait has opened the abdomen for the purpose of removing enlarged spleens and in every instance has been deterred by the apparent hopelessness of the case. In three of the four patients the tumor disappeared and the patients regained perfect health.

He has seen a myoma disappear after an abdominal section intended for its removal, yet where nothing was done except handling the tumor with the result of deciding that it was irremovable.

This experience has been recently confirmed at a meeting of the Imperial Royal Society of Physicians, of Vienna, where Prof. von Mosetig showed a case of myo-fibroma of the uterus, from which the patient had suffered since February, 1888. She had severe pains in the sacral and pelvic regions, as well as constipation, difficulty in micturition, and metrorrhagia. Examination revealed the presence of a solid and elastic tumor, which was quite fixed and filled the poste-

rior cul-de-sac. At the request of the patient, who was anxious to have something done, exploratory laparotomy was performed on October 7. On opening the abdomen, a tumor, as large as a man's head, and quite immovable, was found; it filled the large and the small pelvis, and was close to the sacrum. When the tumor was exposed it presented a peculiar appearance; it became congested, assumed a dark-red color, and spontaneous rupture of blood-vessels took place in some spots. As operation was not indicated under such conditions, the abdomen was closed. The abdominal wound healed without any trouble, and the patient said that the pain and discomfort were less than before. When she was examined a second time, fourteen days later, they were not a little astonished to find that the tumor had shrunk to half its former size, being scarcely as large as a child's head, and the tumor had become movable. It continued to diminish in size, so that when the patient was presented to the Society it was scarcely as large as a man's fist. Prof. von Mosetig did not know of any similar case in medical literature. He explained the occurrence by the supposition that the disappearance of the myo-fibroma was due to the intense hyperæmia which had been observed during the operation, just in the same way as soft sarcomata may disappear under the influence of severe erysipelas, etc.

Tait has had several cases in his own practice where such disappearance has been completely effected; but adds that unfortunately he knows of a very much larger number where no such result has been obtained; and that, therefore, whilst no dependence can be placed on mere exploratory incision as a method of treatment, this strange fact, coupled with many of a similar kind, constitutes an argument for the free application of the principle of exploration.

Another case may be given in his own words:¹⁷ The lady was a Jewess, æt. 34, in whom a large myoma had been diagnosed by the late Dr. Schroeder, of Berlin, and others, and in that opinion I certainly agreed when she was brought to me in May, 1888. From the tumor she was suffering very little, and was hardly conscious of its existence, but she suffered much from a gall-bladder full of concretions, and this was the immediate cause of her being sent to me by Prof. Gluge. I performed cholecystotomy a few days after I saw her first, at which time the myoma reached quite half way up to the umbilicus. I did not, of course, go anywhere near the tumor at the time of the operation—did not touch it. I saw her again a fortnight ago (November, 1889), and found to my delight that the myoma had

¹⁷Diseases of Women and Abdominal Surgery, Vol. 1, 1889, pp. 192-194.

receded into the pelvis, and was certainly not one-third of the size it had been six months before. There could be no other known cause of its reduction than the abdominal section, as no kind of treatment had been directed towards it—as a matter of fact, the patient had forgotten all about it.

The history of cases of tubercular peritonitis treated by abdominal incision is now so well known that it need not be gone over in detail.

König¹⁸ has recently summarized 131 cases of peritoneal tubercle treated in this manner. Of these 89 were cured, 23 were greatly improved. Of the 89 cures 30 exhibited no signs of intra-peritoneal tuberculosis several years afterward.

Spencer Wells has reported one case of twenty-five years' standing, Schücking one of fifteen years, and Stelling one of thirteen years.

As to the method by which these results were obtained, examination of the cases shows that there was only one condition common to all; that is, the belly was freely opened, and a certain amount of intra-peritoneal manipulation was practised. In some cases the incision was merely diagnostic; in others the liquid was evacuated as freely as possible; in still others, more radical surgical measures were adopted, curette, scissors and knife being used. All of these measures were followed by cure. Even the employment of anti-bacterial agents, often considered the sole factor in the favorable result, seems to be absolutely without influence. In eighty cases the abdominal cavity was washed out with antiseptic solutions, or sprinkled or rubbed with iodoform. In fifty cases no anti-bacterial agents were employed. Apparently a greater percentage of cures followed where no disinfectants were used.

A question of major importance is as to whether only certain forms of peritoneal tuberculosis can be cured by section. As is well known, the effusion may be serous, sero-fibrinous or purulent; may be circumscribed or diffuse. The tubercles may vary in size, being miliary in one case, in another as large as a hazelnut. The peritoneum may be smooth, roughened,

¹⁸Centralblatt f. Chirurgie, No. 35, 1890.

thickened or covered with pseudo-membrane. In so far as clinical studies go, it would seem that all these different forms of tubercular peritonitis have undergone resolution after abdominal section, and consequently that they are all curable.¹⁹

Professor Annandale²⁰ has reported a case in which long-standing gastric symptoms were completely relieved by abdominal section and the raising up of depressed ensiform and costal cartilages. A young man, eight years previously, had received a severe blow upon the left side over the lower cartilages and sternum; dragging pain in the region of the stomach with vomiting had resulted, and continued, in spite of treatment, with more or less aggravation. Being unable to work, and the diagnosis from external examination not being satisfactory, an abdominal incision was made as if for gastrostomy, and the parts explored; no condition except a morbid depression of the lower costal and ensiform cartilages being found, these cartilages were divided and raised up. The result was complete relief to his old symptoms, and the patient, when seen two weeks ago (nearly six months after the operation), remained quite well.

In the discussion which ensued, Mr. Bryant said that he felt it difficult to criticise such cases, which belonged to a class unfortunately becoming more common, where operations of exploration or discovery were undertaken with failure to find out more than was known before, though in many cases results were obtained in ways we could not explain. Such cases were interesting, but dangerous, tempting the rasher ones to explore more freely than should be done.

One could hardly think that the depression of the cartilages gave rise to all the symptoms described, and he thought surgeons should be grateful to Professor Annandale for placing such a case on record.

Mr. Treves, in the same connection, referred to the remarkable improvement which sometimes followed after exploratory laparotomy in apparently hopeless cases. He had seen a case of tubercular peritonitis get well after simple exploration. He had twice opened an abdomen, discovered pyloric cancer, and closed again without interfering with it; one man was substantially better in every way for ten days; the second underwent so remarkable an improvement that there was a doubt of the diagnosis; he continued better for six weeks, and then the old symptoms returned and he died, the necropsy revealing extensive carcinoma.

¹⁹Univ. Med. Mag., November, 1890.

²⁰London Lancet, 1889, vol. i, p. 330.

Mr. B. Jessett related the case of a man, *æt.* 45, who suffered with severe and continuous vomiting, and pyloric cancer was thought to be present. He had a large reducible hernia of 25 years' standing, for which he had never worn a truss; after radical cure of this he made a perfect recovery.

Professor Annandale quite admitted his inability to explain the reason of the result obtained, and he related a case in which distressing renal symptoms were present, which were cured by a negative exploratory excision.

The following cases have been briefly furnished me in response to letters of inquiry, many of them not having been published previously:

I can recall but two cases, both of which were operated upon some years since by our friend, Dr. H. F. Campbell, I being with him both times.

The first case was one of intestinal obstruction with great abdominal tympany and with tenderness generally diffused over the whole abdomen. Laparotomy was performed by an incision of three to four inches. Patient slowly but steadily recovered.

The second case was one of perityphlitis, due to over-indulgence in blackberries. There was complete intestinal obstruction, fever and some distension. Suffering intense. Tympanitis and tenderness in right iliac fossa. Exploratory laparotomy was done. An aspirating needle inserted at several points failed to reveal the existence of pus. Peritoneum not incised. Wound left to granulate. Patient made an uneventful recovery.

JNO. S. COLEMAN.

Augusta, Ga., March 21, 1891.

I have had two cases of fibroid tumors of the womb as large as the adult head, dwindle down almost to an inappreciable size after an exploratory incision. In each instance the object of the operation was the removal of the ovaries. But they lay behind a universally adherent tumor and could not be touched.

WILLIAM GOODELL.

Philadelphia, March 27, 1891.

I opened the abdomen in a young primipara in her sixth month for severe constant localized pelvic pain, thought to be due either to a pyosalpinx or an appendicitis. Nothing whatever abnormal was found. The wound was closed. Pain disappeared entirely.

Philadelphia.

BARTON C. HIRST.

A young woman, æt. 24, suffering from obstruction of the bowel, had fecal vomiting for three days before operation. She had been suffering slight pains in the abdomen for a long time but nothing to prevent her from going to her work.

I was asked to operate for the relief of the obstruction. There was a tumor of considerable size extending from the left side of the pelvis, where it was most prominent, then spreading over the entire abdomen. An incision two inches long was made down to the tumor or mass and a plucky effort made to find out what it was; failing in this, the incision was extended to eight inches and the abdominal wall released with great difficulty from the tumor, from crest of ilium to crest of ilium and from pubes to diaphragm, the adhesions being almost as strong as the skin itself. With fingers and knife I continued the dissection into the mass without seeing a single knuckle of intestine or any landmark to indicate their presence. After one hour of continuous effort at investigation with considerable loss of blood, I concluded I had done all within the bounds of safety; that it would be better to let the patient recover from the ether and the disease destroy her than to continue the operation under the hopeless outlook with the prospect of having her die on the table. The wound was carefully cleansed and sutured and the opinion given she could not possibly live longer than a few days. The patient reacted well from the ether, was nourished by the bowel, on the second day had natural movement from the bowels and, now, eight weeks after the operation, is rosy, bright and well, with a small tumor in the left groin. MORDECAI PRICE.

Philadelphia, March, 1891.

I have opened the abdomen in two cases when I did not know what the matter was and don't now, but the patients both got completely well. One appeared to be malignant and for that reason upon the advice of all present I abandoned the operation and told her husband I thought she would die. She got well and has since had a baby and is now in good health. The other had been in bed six months with what all diagnosed as chronic peritonitis. I did find a few adhesions, which I broke up. The uterus and ovaries were all right. She got well. JOS. T. JOHNSON.

Washington, D. C., March 24, 1891.

A young woman, multipara, consulted me in my clinic, complaining of the most intense pain in the left ovarian region. She really was in

agony. This continued for quite a long time, several weeks if I remember correctly, before I determined to operate. She lost flesh and strength, was bedridden, had temperatures from 101 to 103, could not be touched in the ovarian or hypogastric region without causing a scream.

On opening the abdomen, which I had determined upon, because at the time of my first examination and also subsequently, an indefinite fulness was felt resembling a distended Fallopian tube, absolutely nothing was found to account for a single symptom. She was merely washed out and sewed up again. Recovery in every respect was prompt and perfect *

H. J. BOLDT.

New York City, March 9, 1891.

I have known of instances where livers were tapped for abscess of the liver without pus being found, when both the doctors and attendants and the patients have thought it had been beneficial, and in the *London Lancet*, some years ago, I saw cases mentioned of similar character.

J. M. DACOSTA.

Philadelphia, Pa., March 23, 1891.

A patient of mine had every appearance of an ovarian tumor. Dr. Joseph Price and Dr. D. Hayes Agnew were called in and after careful examination and consultation we all thought the history of the case and the other symptoms justified ovariectomy.

Dr. Price performed the operation. When the abdominal section was made, to our surprise, it was a lipoma which was cut through and we found nothing else. Under the tonic influence of the knife by cutting through it in the course of time it entirely disappeared leaving

*John G. LeConte, M.D., Savannah, Ga., reports the case of a colored woman, æt. 29, stunned by lightning. Menstruation perfectly regular prior to the shock; afterwards very irregular, there being sometimes two periods in one month, and sometimes only one in two months. Quantity much diminished.

Also the case of a colored woman, æt. at least 70, also shocked. The catamenial discharge which had, in accordance with the ordinary arrangements of nature, ceased for more than 20 years, was completely re-established. At least a discharge from the genital organs, having all the obvious and sensible physical character of the catamenia and observing with rigorous exactitude its peculiar law of periodicity was established and continued to recur until the date of the report—over one year. She had not missed a single period. Her mammæ underwent a preternatural enlargement. The electric shock likewise completely relieved her of a troublesome strangury which had harassed her for four or five years.²¹

²¹N. Y. Jour. Med., 1884, iii, p. 296.

the patient quite well and relieved of the burden of what we supposed was an ovarian tumor. The patient was benefited by the operation, although no part of the fatty tumor was removed. D. F. WOODS.

Philadelphia, Pa., March 24, 1891.

A lady somewhat well along in years, under the care of Dr. W. C. Bailey, of Albion, New York, during the past few years of her life presented a most remarkable case of fibrinous or membranous enteritis. These features of her case will be reported in due time by Dr. Bailey. With him I saw her several times, and when I first saw her she was irrational a large part of the time. She presented crises of pain in the hepatic region with a marked area of tenderness, and apparently a little swelling, and her general condition and history as well as the local conditions made it very probable that we had to do, for one thing, with a case of abscess of the liver. I introduced a long exploring needle, and while not finding fluid pus, I nevertheless withdrew with the needle cells, which, under the microscope, were so strongly suspicious that I advised operation; this was done a little later, a free incision being made just below the costal border; after reaching and exposing the liver I punctured at least six times in different directions, and to considerable depth, with a still larger exploring needle, but failed to find any pus. The gall-bladder contained a few calculi, but inasmuch as, so far as we could see, she had never suffered from their presence, I left them there undisturbed. The exploratory incision healed by first intention, and, to our surprise, from the day of the operation all her pain and local tenderness subsided and never recurred. She and her family were always strongly of the belief that her relief from her distressing condition was due entirely to the operation which had been performed, in which view naturally we could not but coincide.

This is the most marked demonstration of the possibility of such cases as those to which you refer that has ever come under my notice. Of course like yourself I have trephined for intense headache when I found nothing which would be generally considered pathological, and yet with relief of pain. So also in operations on various nerves, we seldom if ever find the actual cause of pain, although the latter symptom we relieve.

I have had another case of obscure liver disease in which jaundice and pain vanished almost from the hour in which a number of exploratory punctures were made from the outside, in the endeavor to detect pus if present. This lady even places such an exaggerated estimate

on the slight service as to state to her friends generally that I had saved her life by the little operation.

Aside from this I have repeatedly seen marked benefit from puncture with the exploring needle, especially in the ileo-cæcal region. I have in mind at the present moment three cases where I was called in consultation to ascertain whether we had to deal with a perityphlitic abscess. The signs being indefinite in each of these cases, I made several punctures with the hollow needle, and as above, in every instance there was diminution of pain from the time of the puncture, while speedy resolution of the inflammatory exudate seemed to have been provoked by the slight mechanical result. From these and similar experiences following the use of the needle, I have learned to regard it and speak of it almost as did Pancoast of his antiphlogistic touch of the knife.

ROSWELL PARK.

Buffalo, N. Y., March 15, 1891.

Some time ago I operated upon a patient for salpingitis. Subsequently the woman returned complaining of a renewal of her old pelvic pains. On looking up her record I found it stated that only one tube had been removed. I concluded therefore to repeat the operation on the other side. After making incision I was greatly surprised to find both tubes had been removed in the first operation, and that the history was incorrect. I accordingly closed up the abdominal incision and was not a little astonished to find that the patient subsequently declared herself to feel perfectly well, and has, I believe, had no return since of her distressing symptoms.

WILLIAM T. LUSK.

New York City, March 18, 1891.

I opened the bladder by the perineum; found nothing; wound stayed open for several months; symptoms relieved.

I opened the abdomen, and found an irremovable tumor; symptoms relieved; tumor shrank.

D. W. CHEEVER.

Boston, Mass., March 8, 1891.

Two well marked instances of restoration to health following simple laparotomy have been met with in my experience.

Two years ago, I was called to a distant town to remove a tumor from a lady's abdomen, the character of which was uncertain. After seeing the case and making a thorough examination which did not disclose its nature satisfactorily, I advised against an operation. So much pressure was brought against this decision by the family physician and

the friends of the patient, that I finally concluded to make an exploration. It proved to be a very soft mass of large size connected with the uterus, and probably a soft myoma. I had with me neither the assistance nor the means to make a hysterectomy, so I refused to go any further and closed the wound; the pain from which she suffered was entirely relieved and within a year the tumor entirely disappeared. The patient was about 35 years old.

The second case happened about eight months ago and the patient was suffering from a tumor in the abdomen of large size in or about the liver; the margins of the tumor reached below the umbilicus. The man was in great pain and was emaciating rapidly. An exploratory operation was determined upon with the hope that the difficulty would turn out to be an abscess of the liver. An examination of the mass after it was exposed, disclosed it to be the liver itself immensely enlarged. It was perforated in several directions with the aspirator and no pus found. The man recovered from the operation without mishap; the enlargement decreased so rapidly that in six weeks' time the liver was of normal size and the patient resumed his usual occupation.

I have records of four cases of entire recovery after laparotomy had disclosed the presence of tuberculosis of the peritoneum without the removal of any organ or tumor.

CHAS. T. PARKES.

Chicago, Ill., March 6, 1891.

I cannot remember more than one case that it seems to me would come under the category of those that you wish. That was a case which I saw last summer of a young girl æt. 14, whose menstruation was stopped somewhat abruptly by exposure to cold, and who had, following that, a severe attack of pain in the lower part of the abdomen. A cake appeared in the central line of the abdomen over the pelvis and her fever ran very high, 104° and over.

When I saw her after three or four weeks she was running this high temperature and there seemed every reason to believe that there was pus in the middle of this cake. I made a laparotomy for the purpose of evacuating the abscess if I could find any, but found all the pelvic organs fastened together in one mass by inflammatory exudation. Tried to find pus in some parts of it by puncture with the aspirating needle without success, and finally closed the wound without having apparently accomplished anything.

From the time of the operation she got rapidly better, and the mass disappeared, until, finally, this winter she has been perfectly well, rid-

ing over rough roads in North Carolina, and with no return of pelvic symptoms.

I have known of one or two cases somewhat similar to this occurring in the experience of others where a similar exudation disappeared after operation, or puncture with an aspirating needle. I hope that this case will come into the line that you are investigating.

Boston, Mass., March 13, 1891.

A. T. CABOT.

I operated some years ago upon a man for supposed stone in the bladder. He had all the symptoms of calculus and I thought I felt it before cutting. I found no stone but the man got well and never had a return of his old symptoms.

Among my laparotomies I have in two cases opened the abdomen, found the ovaries healthy, closed the abdominal wound without removing these organs. Both of these cases recovered from the operation and got rid of the various neurotic symptoms which before the operation had almost completely disabled them. The moral effect in these three cases cured the patients.

HUNTER MCGUIRE.

Richmond, Va., March 6, 1891.

CASE I.—Married gentleman, æt. 44, for about one year suffered from attacks of severe abdominal pain which by two or three physicians were regarded as hepatic colic. These paroxysms became more frequent and prolonged and seriously impaired health. One was especially severe and being associated with an icterus and of long duration was regarded by his physician and a consultant as an instance of impacted chololith.

The abdominal wall was incised obliquely in such a manner as to have the base of the gall bladder correspond with the middle of the four inch incision. This viscus was found to be normal, contained no calculi and possessed a patulous duct. The incision was closed with silver wire, union was somewhat tardy, due to granulation, but never since, now nearly seven years, has there been a return of the trouble.

CASE II.—A German, æt. 46, had chronic diarrhœa with abdominal tenderness and with a recognizable resistance and sense of hardness over hepatic flexure of colon and a little below and across. Malignant disease of this flexure was diagnosticated and palliative means of relief instituted. After a time, some 8 or 10 weeks, severe paroxysmal pains having developed and been suffered until they seriously impaired health, an exploratory incision was consented to with the full knowledge of patient that perhaps nothing could be radically done. The

incision was made in the linea alba and the upper third of ascending colon, its hepatic flexure and half of transverse portion found to be universally carcinomatous. The omentum major was largely involved. Incision closed with silver wire; stitches removed within eight days, union perfect. The intense paroxysmal pains did not recur and from their total relief the patient actually temporarily gained in flesh and strength. In the course of a few months the malignant trouble manifested itself in its usual manner and exhaustion terminated the scene.

CASE III.—A German lady, æt. 47, from whom 4 years before I removed an almost universally adherent ovarian cyst, again consulted me for the relief of severe abdominal pain. This was paroxysmal and at times so intense as to cause mild shock. The line of incision of original operation felt nodular and hard, and several sharply defined ovoid masses, movable under abdominal wall, were easily discernable. As the original cyst, which weighed $37\frac{1}{2}$ pounds, had on its inner wall about half a dozen small wart-like protuberances, not larger than a pea, I diagnosticated carcinoma of omentum, and advised another laparotomy. The cicatrix of the first operation with all the involved abdominal wall was excised and the omentum removed close up to the colon. The retro-peritoneal lymphatic glands were, for obvious reasons, untouched, although they were large and bulged well into the abdominal cavity. Incision healed promptly, and, notwithstanding the large lymphatic masses left remaining, the severe paroxysmal pains never again occurred. She ultimately died of total occlusion of the bowel and the exhaustion of general malignant disease.

CASE IV.—A poor woman applied to an eleemosynary institution for relief of an exceedingly painful abdominal tumor (solid). An incision in the linea alba disclosed retro-peritoneal sarcoma. Incision was closed after doing nothing but dusting iodoform over peritoneum, and while everything was left untouched the pains never again occasioned suffering. The malignant disease ran its course and terminated life in a few months, but that conspicuous element, severe neuralgic abdominal pains did not recur.

HENRY BEATES, JR.

Philadelphia, March 20, 1891.

In one case I opened the abdomen for presumed multilocular ovarian cyst, but the mesentery was found to be sarcomatous to such a degree as to forbid further surgical interference. Although the woman was supposed to be sinking rapidly prior to the section, she recovered her strength and health to a large degree, and for some six months thereafter she was fairly comfortable. I then lost sight of her, and learned that she subsequently died from other causes.

The second case was one in which I did a laparotomy for supposed pyosalpinx. The tubes were found to be normal and were not removed; the ovaries, however, were undergoing cystic degeneration perceptibly, but were, at my suggestion, left alone, with the intention of treating them by electricity. The woman made a good recovery, and is now in splendid health (five years after the operation) due, as I hold, to the electric treatment, but my friend who furnished the case believes the section to have been the factor working the cure.

Philadelphia, Pa., March 20, 1891.

WM. R. BLACKWOOD.

Man, æt. 55. Typical history of cancer of the stomach. Movable nodule, about the size of an egg, easily felt just below the rib margin in the nipple line of the left side. Patient suffering from intense pain, preventing all rest except that procured by administration of morphia. Vomiting followed immediately upon the ingestion of food.

Exploratory abdominal incision. The peritoneal cavity was filled with serum. The stomach, after very gentle palpation, was found so extensively involved in the cancerous disease that the idea of operation could not be entertained. The parietal wound was closed, without draining away the serum, and healed in six days, no reaction having followed the operation. The patient was not under ether more than of twenty minutes. On regaining consciousness he declared that his pain had entirely left him, nor did it again return. The attacks of vomiting became much less frequent and the patient's subjective symptoms were practically cured. He died two weeks after section from progressive exhaustion.

EDWARD MARTIN.

I can recall a number of cases where lesions were found which could not be removed, wherein the symptoms disappeared for a considerable length of time under the mistaken impression that the lesions had been removed.

I have known menses to disappear and severe dysmenorrhœa with it under the mistaken impression that the ovaries had been removed.

It is my uniform observation in laparotomy, when I have made an exploratory incision for diagnosis and passed a hand, or simply a finger, into the peritoneal cavity, if the patient be kept for a time in ignorance of what has been done, she experiences a notable relief from her sufferings. This I have observed very many times.

In one notable case I had promised the patient and her husband not to subject her to any extra hazards in the removal of her ovaries, and finding these organs buried in very extensive and firm adhesions,

I closed the abdomen with a simple exploration. It was a case of hæmorrhagic and extremely painful menstruation. The menses promptly stopped. She passed eight months without her periods very comfortably in ignorance of what had been done in her case. Her family physician, feeling that she was quite secure, explained to her the situation. It was scarcely a week until the menses returned with the same violent pain as before and she returned to me, determined to take any risk for relief. I tore up the adhesions and removed the ovaries with a prompt and complete cure of her malady.

Rome, Ga, April 7, 1891.

ROBERT BATTEY.

I can recall but one personal case where nothing was found, yet relief was afforded, and that was a case of pleurisy (supposed) with agonizing pain. A few drops of serum were withdrawn by an ordinary hypodermic syringe, but when I introduced the trocar nothing further was obtained, do all that I could, yet the pain was relieved, did not return, and the patient commenced to mend.

I am sure that other cases have occurred in my practice where operations discovered nothing, yet benefit accrued—still I cannot recall them. Of course, I presume that your question does not refer to operations for epilepsy, headache, etc., where nothing was found beyond what was *assumed* to be sclerosed and thickened bone; if you do, I have had two such cases within six months recently, one where the headache, dizziness and inability to do brain work had lasted—increasing much of late—for 26 years, in which complete cure seems to have resulted; the other where *grand mal* has been apparently put a stop to and the *petit mal* almost abolished.

Ann Arbor, Michigan, April 3, 1891.

C. B. NANCREDE.

CASE I.—Operation April 7, 1885. Miss S., æt. 37. Pelvis filled with a fibroid tumor extending upward to within an inch of the umbilicus. Had frequent attacks of peritonitis during last three years. Tumor almost immovable, left ovary can be felt on the front of the tumor; right ovary resting on vault of the vagina beneath the tumor.

Incision four inches in length. Intestines highly congested, considerable ascitic fluid present, tumor firmly fixed by strong adhesions. Washed out the belly thoroughly with hot water and closed the wound. In six weeks the patient was better than she had been for years, the growth of the tumor was arrested, and at last accounts she was still improving in health.

CASE II.—Operated December 16, 1887. Mrs. H., æt. 40. Mar

ried at 18 years. Miscarried six months later, which occurrence was followed by severe pelvic inflammation; continued in wretched health and sterile until 34 years of age, at which time, she says, a tumor was discovered in her pelvis. Habitual dysmenorrhœa and chronic invalidism have brought her to me. An examination revealed the pelvis full of solid exudates, the uterus firmly fixed

Incision in the linea alba three inches in length. Intestines adherent to the mass in the pelvis, also the tail of the omentum. It was barely possible to pass one finger down into the pelvis behind and to the right of the fundus. Some of the adhesions were broken up, the belly was washed out with hot water, and the wound closed. Healing was prompt, and a year later she was reported very much improved in health.

CASE III.—Operated June 12, 1888. Mrs. U., æt. 41. First confinement followed by two false conceptions. Later conceived and miscarried at four months. For years afterward was the subject of uterine treatment. During several years past has, at intervals, discharged pus from the rectum. Recently an accumulation of pus has discharged through the rectum. Efforts to reach the abscess sac were futile.

A three-inch incision in the median line revealed pelvis filled with exudates. Uterus, tubes and ovaries *en masse* fixed. Cavity irrigated with hot water and wound closed. Healing uninterrupted. I met this woman with her husband the following July so much improved that I did not know her. Later I learned that she had gained 25 pounds and was in excellent health.

R. STANSBURY SUTTON.

Pittsburg, Pa., April 10, 1891.

Dr. John H. Musser²² has reported a case of supposed biliary calculi of five years' duration, followed, at the end of that time, by intense jaundice and the development of a tumor one inch below the margin of the ribs in the right hypochondrium, dull on percussion, hard, tender, not fluctuating and of about the size of an egg, the diagnosis of biliary colic, impaction of calculi and enlarged gall-bladder being confirmed by Dr. Pepper in consultation.

Cholecystotomy was attempted. The gall-bladder could not be found or recognized although a hard mass as large as a fist was discovered attached to the liver, colon and small intestine. Nothing was done except to close the wound.

The operation was followed by considerable hæmorrhage and finally

²²American Journal of Medical Sciences, vol. 88, p. 333.

by suppuration. The patient steadily improved. There was never any more paroxysmal pain, the jaundice disappeared and three years later he was reported as in perfect health.

Dr. William Mastin²³ has reported a case in which an exploratory laparotomy revealed a large, solid abdominal tumor (splenic), but with such vascularity and such dense and extensive adhesions as to prevent removal. The operation was followed by marked improvement in systemic conditions and considerable diminution in the size of the tumor.

G. Volney Dorsey, M.D.,²⁴ has recorded the following case: Male, æt. 40. History, ague. Ague cake. Intense pain in the region of the spleen. Patient clamorous for an operation. Operation September 2, 1855. Incision six inches long. Abdominal muscles, fascia, peritoneum, perfectly normal. Spleen adherent for a space of several inches; hard, somewhat enlarged. Intestine protruded largely during operation; adhesion of spleen broken up. Nothing else done. Perfect recovery. No more pain.

This case is paraded in most text-books as one of *splenectomy*!

Recently M. Routier²⁵ has related an interesting case of laparotomy for jaundice of a severe type. A nurse in the hospital was seized with severe hepatic colic lasting 24 hours. In spite of energetic treatment jaundice set in, the fæcal excretions were discolored and the urine almost black. The liver was felt below the false ribs, and the gall-bladder was painful. For a whole month the condition of the patient remained unchanged, and at the end of that time vomiting set in, and the patient became much emaciated. Believing that a biliary calculus was obstructing the bile duct, the surgeon determined to explore the region, and for that purpose laid open the parts by an incision on a level with the inferior edge of the liver. Passing his fingers through the wound he felt the gall-bladder, which did not seem in any way distended, and consequently was not obstructed. He passed his fingers then over the inferior edge of the hepatic organ but found nothing abnormal. Before withdrawing his hand he felt the head of the pancreas, but no tumor was discovered there. Finally, he closed the wound, and, strange to say, the vomiting, which had been previously uncontrollable, ceased, and in two days afterwards the jaundice paled,

²³Medical News, March 17, 1888.

²⁴Med. Counsellor, 1855.

²⁵Medical and Surgical Reporter, April 11, 1891.

and in a week the urine assumed its normal color, and the patient speedily recovered. Routier could only explain the happy result by the fact that the massage displaced some mucous collections which had obstructed the flow of the bile.

Dr. Geo. C. Kingsbury²⁶ reports a case of Dupuytren's contraction of the palmar fascia occurring in a man, æt. 45, who had been subject to acute rheumatism, but was otherwise healthy. His father had for years suffered from phalangeal contraction of the ring and little fingers of both hands. The patient was a barber by trade. His right hand had been affected for 12 years and his left for eight years. Two treatments with hypnotism caused the disappearance of the pain, which had previously been severe, and resulted in the complete return of motion to the hands and fingers.

The case was reported two months later and the cure seemed to be permanent.

Dr. W. M. Chamberlain²⁷ reported a case in which the abdominal wall was divided nearly down to the peritoneum, and the wound was then sewed up. Six weeks afterward the patient was entirely relieved of dysmenorrhœa and other symptoms.

I have recently done a pretended laparotomy in three cases with pelvic pain, ovarian neuralgia and distinct symptoms undoubtedly of sufficient severity to warrant a full exploratory operation and probably an oophorectomy. In one case a mass the size of a hen's egg was to be felt to the left of the fundus; in another there was thickening and increased resistance of the broad ligament close to the cornua; in the third nothing definite could be made out by vaginal touch, but the subjective symptoms of pelvic inflammation were very marked. The previous histories were taken and the conditions confirmed by the chief of the out patient gynæcological department of the hospital. My operations consisted of lineal incision down to but not through the aponeurosis; the wounds were immediately stitched with interrupted sutures; no ligatures were applied. A full antiseptic dressing as if after laparotomy was employed. Union by first intention took place. It is too soon to report results, but (the end of a month) two of the three patients "feel like different women," to use their own words. This is not the result of the rest, as they had previously been in bed for some time.

²⁶British Medical Journal, Jan. 10, 1891.

²⁷American Journal of Obstetrics, 1884, vol. xvii, p. 1165.

A subdivision of class 2 includes the operations upon the genito-urinary tract, the most striking of which, in this connection, are those of supposed kidney-stone, in which, symptoms of calculous pyelitis being present, the kidney has been cut down upon, the capsule incised or punctured, no stone discovered and the wound closed, all pain afterward disappearing.

Tiffany's²⁸ collection of cases affords several examples of this sort, a few of which may be summarized. His own case was one in which increasingly frequent paroxysms of nephralgia demanded operation. No stone was found. A scar of the kidney was noticed. The capsule was freely divided. Relief from pain was marked and immediate.

LeDeutu²⁹ operated in a case of continuous pain following several attacks of nephritic colic. Nothing found. Incision into kidney. Complete cure.

Jordan Lloyd, Clement Lucas, Barker and others are quoted in the same paper, their cases being of less value, however.

In a case reported by Dr. James K. Chadwick³⁰, the kidney was cut down upon in consequence of persistent symptoms of renal irritation.

It was normal in all respects. Its pelvis could be easily reached by the fingers, but no trace of a calculus could be found there or elsewhere. A long needle was then passed through the cortex into the parenchyma in various directions in the expectation of detecting a stone, but in vain. All symptoms disappeared.

Dr. Geo. J. Engelmann,³¹ in commenting on this case, said: In one instance, the case of a colleague, I have seen a precisely similar result, in which the operation was performed because all those who had seen the patient, after a careful examination, had determined that the suffering must be due to the presence of a stone. No stone was found, and yet after an apparently useless nephrotomy, although some tenderness remained, the intense colicky pains entirely vanished.

The two following memoranda were sent in reply to my inquiry:

²⁸Trans. Amer. Surg. Ass'n, 1889.

²⁹Bull. de Therap., 1881, p. 343.

³⁰Trans. Am. Gyn. Society, vol. xv, 1889, p. 366-7.

³¹Trans. Am. Gyn. Society, vol. xiv, p. 384.

I have only one such case. It is, like Tiffany's, supposed renal calculus. None found. Patient relieved by the incision.

New York, March 5, 1891.

R. F. WEIR

In 1889, a lad, about 18 years old, with well-marked paroxysms resembling renal colic, was on the medical side of the New York Hospital, and after several attacks was transferred to me. I exposed the kidney, found it entirely normal, and, by the way, noticed distinct, regular, peristaltic action of the pelvis and ureter. Primary union followed. He remained under observation of a nurse in the hospital for many months, and had no recurrence.

LEWIS A. STIMSON.

New York, March 5, 1891.

Class III.—Under the last heading of "Miscellaneous Operations," may be grouped several of very diverse character.

Fehling³² reports the case of a woman who had been in bed for one year for osteo malacia. Six weeks after a Cæsarean section she was out walking, and later was entirely cured.

Hoffa³³ reports eight cases of osteo-malacia, cured by oophorectomy.

Schaua³⁴ reports two cases of osteo-malacia cured by:

I. Oophorectomy. Woman, æt. 32; 4 para. Typical symptoms and deformities of osteo malacia. Treatment negative in results. Confined to bed by disease 15 months.

Oophorectomy. No very marked pathological changes in ovaries. In three weeks patient left her bed; six months after operation, entirely well.

II. Porro operation (ovaries not removed); in two and a half months patient well. Osteo-malacia of five years' standing.

Baumann³⁵.—Of 12 Cæsarean sections, favorable influence on osteo-malacia in only three cases. Of 24 Porro operations, 20 complete cures, 4 decided improvements in condition.

³²Verh. d. deutsch. Gesell. f. gynakol. 1888.

³³Beitrage zur Geburtshulfe in Gynakol. Stuttgart, 1889.

³⁴Wien. Med. Woch., No. 19, 1890, p. 788.

³⁵Ueber d. Einfluss der Porro Op. u. Kastrat. auf das Wesen des Osteo-malacia, Basel, 1889.

OPERATIONS FOR VARIOUS CEREBRAL SYMPTOMS, CHIEFLY EPILEPSY, IN WHICH LITTLE OR NOTHING WAS FOUND TO ACCOUNT FOR THE SYMPTOMS, BUT EITHER MARKED BENEFIT OR CURE FOLLOWED.

[TABLES CONTINUED.]

TABLE III.—CASTRATION.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result — Time between Operation and Report.</i>	<i>Remarks.</i>
Jas. I Rooker — Cincinnati Lancet and Obs., 1861, iv, 274.	M. 35	Epileptic fits of some years' duration; supposed to be caused by masturbation.	Castration double.		Cure. 3 mos.	No fit since operation.
S. S. McKinley, M.D. — Irwinton, Ga. Personal interview with Mr McGavoc, now of Br. Navy. — Am. Med. Gaz., vol. vi, 1855, p. 295.	" 27	Epilepsy from æt. 12-24 years. Had mumps, took cold and metastasis to testicles resulted.	Castration for metastasis during attack of mumps.		Cure. 3 years.	No fit since operation.
" "	16	Boy subject to fits; fell through bridge and had one testicle mashed.	One testis removed for injury.		Cure. 6-7 years.	No fit since
E. E. McKinley. — Am. Med. Gaz., vol. vi, 1855, p. 295.	" 14 Negro.	Epileptic.	Castrated.		Cure. 6 years.	Sold for \$1,100, æt. 20. No fit since operation.
" "	42	Epileptic from the age of 13 years	"		Cure. 2 years or more.	No fits after operation.
Dr. McKinley. — Am. Med. Gaz., vol. vi, 1855, p. 295.		Two cases of Dr. White, of Tennessee. Two cases of Dr. Talbot, of Missouri. One case of Dr. Hacker, (deceased) of Louisiana.			Cures.	By same operation. By same operation. By same operation.

TABLE IV.—TRACHEOTOMY.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, Duration and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result.—Time between Operation and Report.</i>	<i>Remarks.</i>
A. Wynn Williams, M.D., M.R.C.S.E.— <i>Medical Times and Gazette</i> , London, 1860, ii, 253	18 M.	Fits since 10 years of age.	Tracheotomy.		Improved. 4-5 mos.	After six months fits became as frequent as before.
"	25 "	Nocturnal fits for many years.	"		Much improved. 2 years.	Very few and mild fits; resumed work.
J. C. Bucknill, M.D., London.— <i>London Lancet</i> , 1853, ii, 137.	22 F.	Frequent and severe fits for one year.	Tracheotomy May 2d, last.	May	Improved. 4 mos.	Fits reduced 50 per cent in frequency and 75 per cent in severity, and mental condition much improved.
"	35 "	Fits for several years.	Tracheotomy June 20.	June	" 3 mos.	Fits lessened in severity.
Chas. Edwards.— <i>Lancet</i> , London. 1853. i, 492.	Adult, M.	Rapid succession of epileptic fits and terrific laryngismus.	Tracheotomy.		Cured. Several weeks.	
Marshall Hall. Operation by Mr. Holmes Ogle's case. <i>Lancet</i> , London. 1856. ii, 136.	17 "	Epilepsy for six years from fright; more and more frequent with blackness of face; bitten tongue and thumbs; convulsions; stupor; mania; idiocy.	"		" 2 mos.	For two days after operation had slighter fits, none since. Restored from idiocy and strength improved.
Marshall Hall Operation by John Neill, Esq., Penn. Hosp., Philadelphia.— <i>Lancet</i> , London. 1853. ii, 233.	29 "	First fit nine years ago; cause unknown. For past year could not attend to business. Fit every other day; at times 15 to 20 in one day. Mind affected.	"		Much improved. Nearly 2 mos.	Nothing like a fit until 13th day when he attributed to removal of tube. Died May 2d in a fit, having had only slight symptoms of an attack on two or three occasions. Dr. Neill thinks the tube had fallen out and death occurred before it could be replaced.

TABLE IV.—CONTINUE.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result. — Time between Operation and Report.</i>	<i>Remarks.</i>
W. H. Cane, Esq. — Lancet. London. 1851. ii, p. 35.	34 M.	Fits seven or eight years; recently thrice weekly.	Tracheotomy.		Cured. 4 mos.	No fits since.
Marshall Hall, Mr. — Anderson's case. — Lancet. London. 1851. ii, p. 563	36 F.	Fearfully epileptic for twenty-four years.	"		Much improved. 3 mos.	

TABLE V.—REMOVAL OF SUPERIOR CERVICAL GANGLIA OF SYMPATHETIC NERVE.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result. — Time between Operation and Report.</i>	<i>Remarks.</i>
Wm. Alexander. — "The Treatment of Epilepsy." Edin. and London. 1889.	13	Has had fits since 9 or 10 years of age and increasing.	Removal of superior cervical ganglia.		Cured.	No fits for eighteen months.
"	16	Has had fits for five or six years. They are numerous and increasing.	"		"	No fits for about two years.
"	19	Hereditary epilepsy. Has been dull and stupid for fifteen years.	"		"	No fits for one and one-half to two years. Is now married and mind is clear.
"	18	Has had fits for four years.	"		"	Probably had no fits for two years, and is now working.
"	14	Father and two sisters epileptic. Had first fit when 18 months old.	"		"	No fits for two years.

Wm. Alexander. — 14 "The Treatment of Epilepsy," Edin. and London, 1889.	Has had fits for eight or nine years; very bad case; is dull and stupid.	Removal of superior cervical ganglia.	Cured.	No fits for two to three years.
" " 18	Has had fits for five years.	" "	Improved	Patient disappeared from ob- servation.
" " 36	Has had fits for sixteen years, and are increasing in num- ber.	" "	"	(Only one ganglion fully re- moved).
" " 33	Has had fits for eighteen years, and they are increas- ing in number. Mind is also failing.	" "	"	Fits reduced to one-half their former number, and the mind is better.
" " 37	Has had fits since infancy.	" "	"	Got worse after going home which was due to bad sur- roundings.
" " 23	M. Has had fits for six years.	" "	"	
" " 16	Has had fits for one year.	" "	"	Improved mentally and phy- sically and fits are lighter.
" " "	F. Has had fits since birth; a very bad case.	" "	"	Much improved at last report.
" " "	Has had fits since 13 years of age.	" "	"	Much improved during last three months.
" " "	Has had fits since 13 years of age.	" "	"	Was improving very much, but died of pneumonia.
" " 13	Had had fits for three years. Mind was stupid.	" "	"	Improved very much.

This table is taken from a list of 24 cases, of which 6 recovered and remained well at the end of 2 years; 10 were improved; 5 remained unimproved; and none of these have been made perceptibly worse by the operation; 2 died soon after operation, but not from its direct effects; and one has never been heard from.

TABLE VI.—INCISION IN SCALP, INCLUDING ALL THE SOFT TISSUES.

Operator and Reference.	Age and Sex.	Supposed Cause, and Character of Fits.	Operation.	Conditions Found.	Result.—Time between Operation and Report.	Remarks.
T. F. Palmer.—London Med. Gazette, 1835-6, xvii, 221.	F. 35	Pain over right temple for some months, followed later by fits.	Divided integuments down to bone Mar. 5. Later removed circular portion of scalp; seton in neck. <i>Lastly trephining</i>	Cranium more than twice as thick as natural. Dura adherent and healthy.	Cured. 1 mo.	First incision reduced fits for few weeks; removing piece of scalp caused them again to cease for a time. A seton in the neck again gave her immunity. After trephining, two fits few hours after operation; none since; has not felt so well for two years.
Graham Fitch.—Am. Pract., Louisville, 1877, xvi, 212.	" 21	Fell at the age of 7 years, striking head; unconsciousness for a time. Depression in parietal bone felt.	Incision in scalp over depression, 1 inch in length, kept open 3 months.		" 1 year.	But one fit since operation, and that was soon after operation.
Schmucker.—Schmucker's Vermischte Chirurgische Schriften, 1476, p. 252.	M. 22	Scar at upper inner portion of left orbit. Fits two months. (First fit probably few weeks after blow). One or two attacks daily.	Skin incision made one day; next day left hemiplegia involving tongue. <i>Trephined</i> .	Dura normal, but separated slightly from the bone.	" 3 mos.	Fits did not recur. Hemiplegia relieved. Patient completely cured.
F. H. Hamilton.—Buffalo Medical and Surgical Jour. and Rev., v, p. 460.	" 23	Peculiar epileptic fits since 5 years of age. Fell out of bed at the age of 3 years, and struck head.	Dissected up scars on scalp.	Skull found normal so trephining was not done; flaps replaced.	" 3 mos.	Writes at this date and considers himself cured. Mind clear, etc.
Dr. Parish.—Philadelphia Med. Exam., 1843, p. 14.	" 20	Struck head against gas pipe; few fits for first few days; return after eight months.	Incision through tender spot of scalp and few issue peas introduced and retained by plaster.		" 2 to 3 yrs.	No return of fits.
Mr. Bryant.—Lancet, London, 1879, ii, p. 799.	Adult.	Localized pain in head and epileptic attacks following injury five years previously. Appeared to be depression of skull.	Incision of scalp.	As skull was normal and no fracture or depression, trephining was not done.	" 2 yrs.	Pain and convulsions left patient from moment of incision.

Mr. Bryant, (Lancet, London, 1879, ii, p. 799), reports two other cases, almost similar, followed by perfect relief.

TABLE VII—MISCELLANEOUS OPERATIONS.

<i>Operator and Reference.</i>	<i>Age and Sex.</i>	<i>Supposed Cause, Duration and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result. — Time between Operation and Report.</i>	<i>Remarks.</i>
Dr. Hadden. Before Clinical Society, London. — Lancet. London. 1887, i, p. 472.	M 32	Shot in left calf in 1872; several shot extracted. Four months after began to have fits. For nine months occasional, afterward as many as 12 daily.	Sciatic nerve stretched.		No fits afterward for thirteen years, and then began again. Thirteen years and 4 months.	Fits began with sharp, twitching pain in scar in calf. Scar tender and pressure sometimes caused convulsion. Nerve stretched 2nd time; no fits for nine days; then occasional seizures while in hospital. Four months later man wrote and said he had no fit since he left the hospital.
Mr. Bowlly. Before Clinical Society, London. — Lancet. London. 1887, i, p. 472.	"	Shot in leg eighteen months before; fits increasing in frequency and force, preceded by pain in region of leg supplied by musculocutaneous nerve.	One and one-half inch of musculocutaneous nerve excised.		Five years without fits. Five years.	Fits recurred; some shot found under skin and removed. Temporary stoppage of fits. Mr. Willett later stretched sciatic nerve. Fits gradually ceased and no further recurrence.
Horace Green, M.D. — N. Y. Med. Gaz., 1853, iv, p. 98.	"	Epilepsy twenty-seven years. Under use of silver nitrate for two years, fits ceased, and he had acquired argyria. Fits recurred and had several daily.	Cauterization of larynx. Probang with silver nitrate 35 grs to f. oz. J. Thrust in larynx. Later 80 grs.		Fits ceased while under treatment.	Struck with insensibility of larynx. After using silver fits would be checked for a period of 10 days or upward. On recurring the same treatment would again arrest them.
B. Fordyce Barker. — N. Y. Med. Gaz., 1853, iv, p. 248.	F 26	Epileptic fits at or about menstrual period. Usual medication without benefit.	Cauterization of larynx. Silver, 60 grs. to f. oz. J.		Fits arrested while under treatment.	If larynx was cauterized a few days before menstruation period, fits surely prevented.
P. J. Lehart. — Ohio Medical Recorder, Columbus. 1880-1, v, 102.	M.	Epileptoid seizures.	Circumcised.	There was no irritation about glans or foreskin—only a long prepuce.	Cured.	Doctor thinks the cure is permanent.

TABLE VII.—CONTINUED.

<i>Operator and Reference</i>	<i>Age and Sex.</i>	<i>Supposed Cause, and Character of Fits.</i>	<i>Operation.</i>	<i>Conditions Found.</i>	<i>Result.—Time be- tween Operation and Report.</i>	<i>Remarks.</i>
Thos. J. Griffiths.— Rep. Superv. Surg. Mar. Hosp. 1875. 26 Wash. 1876, p. 203. 29	" 24 " 29 " 26 " 29	Epilepsy. " " "	Seton back of neck. " " " " " "		Improved. 6 wks. Recovered. 6 mos. Improved. 2 mos. Recovered. 5 mos.	
S. D. Risley.—Per- sonal communica- tion.	Boy.	Shambling gait; low grade of intellect, and curious group of symptoms, diagnosed as epilepsy.	Tenotomy of exter- nal recti.		Improved.	The frequently recurring spells twice arrested by the opera- tion for six weeks, and shambling gait and mental habits were much improved. Relapsed however, each time.
M. Ch. Fère.—Soc. med. des Hop. de Par., 1888, T. v, 3 s. p. 132.	"	Convulsions.	Scalp burned by 6 to 15 fire-points.		Cured.	Fits decreased and at time of writing had no fits for five months.
M. Garbarini, Paris. London Lancet, '39.		Convulsions.	Acupuncture needle passed four times into heart to the depth of 3 inches.	Attacks always preced- ed by symptoms of angina pectoris.	"	

TABLE VIII.—SPONTANEOUS AND ACCIDENTAL CURES OF EPILEPSY.

<i>Reference.</i>	<i>Age.</i>	<i>Sex.</i>	<i>Supposed Cause, Character and Duration of Fits.</i>	<i>Alleged Curative Agent.</i>	<i>Remarks.</i>
Jno. C. Pearson, M.D., Ursa, Ill.— <i>Med. and Surg. Reporter</i> . Philadelphia, 1869, xx, p. 145.	40	M.	Fits since early boyhood. Every few days to two or three months.	Fell in a fit on bed of live coals in fire place. Dreadfully burned on hands, wrists, face, neck, breast and head. Treatment: opium and stimulents and carron oil.	No fit up to this time—four years. Before burn, being drunk would bring on fit, but since, it does not.
M. Reece, M.D., Abington, Ill.— <i>Ibid</i> , p 239	12	"	Duration, fifteen months; fit daily. Always lost consciousness.	Fell against stove in fit; right side of face burned from outer cadhus of eye over temple and malar bone. Third degree (Dupuytren).	No fit after burn until reported—two months.
Wm. Henderson, M.D., Corstorphine.— <i>Edinburgh Med. and Surg. Journal</i> , 1836, xlvii, p 96.	8	"	Epileptic fits for over one year. Aura mild but frequent. Took whooping cough and each spell of severe whooping caused fit. Confined to bed. Fits affected temper and mind.	During severe spell of coughing had profuse epistaxis.	From moment of epistaxis never had another fit, and rapidly regained health and sanity. Continued well one year later.
Wm. Heise, M.D.— Dublin <i>Med. Press</i> , 1843, x, p. 146. Communicated to J. O'Beirne, M.D., Pres. Royal Col. Surgeons.	36	"	Confined for two years as a dangerous lunatic; frequent and regular epileptic fits; no history; fits generally every third day.	Attacked by another lunatic and sustained fracture right parietal bone, with depression and several large spiculæ driven through dura in o brain; considerable cerebral substance forced out through wound; copious hæmorrhage, e c; usual treatment.	Now paralytic, paraplegic, but sensation remained. Incontinence of urine and faces. Intellect more rational and acute; fits less frequent and finally ceased. Continued so for over six years, when he died.
Jacob Sproul.— <i>Medical Times</i> . London 1884, ix, p. 152.	21	F.	Two fits of epilepsy daily.	Severe burn back of hand and arm and side of face and neck. Capsular ligament on back of fingers destroyed, etc.; amputation advised. She refused and treated with splint and ung. lapis calm. Cure.	No fits since burn three years ago.
R. Beveridge, M.B., Lect. on Path., and Path. to Royal Infirmary, Aberdeen. <i>Med. Times and Gazette</i> , London. 1889, i, p. 390.	70	"	Epileptic fits for ten years, generally once a fortnight; usual characters; complete unconsciousness. Fell over a precipice, cause of fits.	Fell in fit in fire and severely burned, whole scalp charied, also eyes, lips, cheeks and ears, also tip of tongue; patient much shocked. Seventeen days later consciousness returned; five days later both eyes fell out. Exfoliation of frontal, nasal and part of ethmoid bones.	All healed over in eight months. Death fifteen months after burn from influenza. No fit after burn and enjoyed good health.

TABLE VIII.—CONTINUED.

<i>Reference.</i>	<i>Age.</i>	<i>Sex.</i>	<i>Supposed Cause, Character and Duration of Fits.</i>	<i>Alleged Curative Agent.</i>	<i>Remarks.</i>
Salvator de Renzi.— Jour. d. pract. Heilk. Berlin. 1838, lxxvi, 1st, 106.	18	M.	Since eight years had epilepsy; attacks at least once a week; resisted every known therapeutic agent.	Gun-powder explosion and fall from upper story of house. Complicated fracture frontal and left upper jaw bones. Patient 5 months in bed. Suppuration and exfoliation of bone. No epileptic attack during this time. Loss of epileptic facies. Increased mental powers.	On closure of head wound attacks renewed with increased violence. On placing a seton in neck, epilepsy again nearly disappeared.
W. E. Wormes.—Mag. f. d. ges. Heilk, Berlin 1841, lviii, 84.	48	"	Since early youth, daily attacks of epileptic convulsions. No treatment was of any value.	Severe burn of face during a fit; profuse suppuration and six weeks to cicatrize. Free from fits during this time. As ulcer-surface closed had headache headache; following fright had fit of usual severity and thereafter his disease was same as before.	Fits ceased while wound was open, but recurred as before after it had cicatrized over.
Dr. H. E. Groen, Ky.— W. J. M. and Phys. Science, 1850, iii, 209	48	" Negro	Fits two and a half years. Had been treated with all sorts of drugs without benefit.	During fit fell in fire and had foot severely burned. Took four months to heal.	No fits while wound was healing (four months) but recurred after wound had healed.
Case of Dunat, cited by Delasiauve. Traite d' Epilepsie, p. 422. Paris. 1854.		M.	Young man subject to fits.	Assailed by robbers, wound in forehead, destroying large portion of bone; wound open a long time, but finally cicatrized.	Cured. No fits after injury.
W. H. Edwards.—Vir- ginia Med. and Surg. Journal. Richmond. 1855, iv, 204.	24	F. Negro	First fit at 12 years of age, after full meal; continued ever since. In a fit fell on hearth and sustained severe burn of foot; very deep; sore kept open and offensive.	Amputation below knee on account of burn received 5 years before.	Fits continued during five years; the burn was suppurating, but ceased at once after amputation and had no recurrence. Three years.
Aubanel.—Gaz. med. de Par. 1839, 2 5., vii, 679.	40	M.	No heredity; eighteen months after severe fright; had a fit. Fits continued. During attack left arm and knee severely burned.	Amputation of arm high up for burn. Wound healed in one month.	Cured. No fit since amputation, now eighteen months.
Aubanel.—Gaz. med. de Par. 1839, 2 5., vii, 679.	50	F.	No heredity. Fits began at 15 years, and increased to 15-20 a day at times. At 25 years received a severe burn of right hand.	Amputation of hand for burn.	Cured. No fits since amputation, four years.

Passing to quite another subject the following communication from a careful and experienced observer is of great interest:

Neglecting the large group of patients who have been relieved by tenotomy of the ocular muscles from symptoms altogether out of proportion to the very slight defect which it was sought to correct, I call to mind but one case which seems to fall within the scope of your inquiry.

A young woman, æt. 20, sought advice for an exophthalmos on right side. There was a marked aneurismal thrill and bruit. Pressure was made over the carotid with the result of temporarily arresting the thrill and bruit. This was repeated three times, and an appointment made for consultation a week later with Dr. Agnew. The exophthalmos remained, but the thrill and bruit, so unmistakably present before, were absent. Dr. Agnew suggested an exploratory puncture, which I made, the findings to be described being verified by him. A resisting mass, apparently the size of a filbert, was lying deep in the upper and inner angle of the orbit. The vision was still $\frac{4}{5}$, and no operative interference was advised. She returned to her home in the interior of the State. Six months later her father reported that the exophthalmos had disappeared under the administration of "herls", directed by an old woman in the mountains.

Philadelphia, Pa., March 23, 1891.

SAMUEL D. RISLEY.

It seems to me that in other ophthalmological work still further illustrations of my subject may be obtained, though I express my opinion in this direction with some diffidence:

In the belief that the constant effort to maintain single vision in cases of insufficiencies of the external ocular muscles leads reflexly to irritation inducing nervous troubles in distant parts, Dr. George T. Stevens has elaborated an operative technique intended to restore the faulty equilibrium of those muscles, known under the name of "graduated tenotomy"—a name sufficiently descriptive of the method.

Freely admitting the universally accepted doctrine that refractive errors and imperfect equipoise of the external ocular muscles are important factors in the production of numerous cases of headache and so-called "reflex" nervous manifestations, and also freely acknowledging the value of tenotomies, both complete and graduated, in the restoration of equilibrium to

badly balanced ocular muscles, I am none the less convinced that in numbers of instances of reported cures of chronic chorea, petit mal, and even delusional insanity the effect of the operation *per se* in large measure was the potent cause of the supposed cure. This is founded not alone upon theory, but rests upon the fact that in certain cases of "reflex nervous troubles" a cessation of the symptoms has followed the tenotomy, although this has not produced perfect equilibrium; or in other words, the effect of the supposed cause ceases, although the supposed cause itself continues to obtain, the only impression made having been by an incision, not again repeated, and not complete enough to accomplish the object for which it was undertaken. Again the relapses which may take place after a perfectly successful series of tenotomies would indicate that the nervous phenomena attributed to the "insufficiencies," for the relief of which the operations were made, were not correctly so attributed, and that the temporary relief must be ascribed to some cause other than the restoration of an imperfect balance of external ocular muscles.

Disturbances of the nervous system from supposed reflex action scarcely come within the scope of this paper or I should have been tempted to include some of the extraordinary cures which have been reported as following circumcision. Whether the partial paralyses, defective co-ordinations, convulsions, deformities, etc., were or were not really due to spinal anæmia of reflex origin, there can be no question that in the number of well-authenticated cases their disappearance followed the removal of a narrow and adherent prepuce.³⁶ Is it possible that a certain proportion of them would have been equally benefited by the amputation of a toe or finger? The question may be worth considering, even if the answer seems to be obviously in the negative.

Neither have I intended to include in this paper any extended consideration of those cases in which the disease is purely imaginary, although the field that would be opened up in this direction is very fruitful, especially in reference to the operations of charlatans and to those of the extremists and one-

³⁶Trans. Ninth Intern. Med. Cong., p. 461, vol. iii.

ideaed specialists always to be found in the ranks of the profession.

The *post hoc ergo propter hoc* method of argument is the refuge of all such operators and various surgical procedures have from time immemorial in this manner been credited with remarkable cures.

An example may be found in the history of what Dr. Van Buren³⁷ has called 'phantom stricture' of the rectum, a malady which in the first half of this century was almost epidemic in Great Britain. So prevalent was the delusion as to the great frequency of rectal stricture, its origin in spasms and its curability by bougies. Dr. Van Buren³⁸ quotes from Moliere an illustrative story of a lady in London, who, recommended to a specialist for costiveness, was examined with a bougie and pronounced strictured. Her husband, surprised and angry at the liberty taken with his wife, rushed off with a horse-whip to the house of the offender, but came home again after a little to his anxious partner confessing that he had grievously wronged a most worthy gentleman. The specialist had not only satisfied him as to the certainty of the lady's malady, but had proved, by inserting a bougie, that he also had a stricture. Horace Walpole furnished similar evidence in one of his letters. He warns a friend, who is about going to Bath for his health, not to fall into the hands of a notorious practitioner of that place who always found his patients affected with contraction of the lower bowel and set them to introducing bougies. His friend, in response, warns Walpole not to joke about serious matters, for he had already consulted Mr. —, who had actually found an obstruction in his bowel that caused all his symptoms, and that he was already getting better under Mr. —'s skilful use of an instrument which he was inserting daily.

The practitioner alluded to was probably Mr. White who published various articles on this subject from 1809 to 1822, having succeeded in finding strictures of the rectum beyond the reach of the finger and recognizable only by the bougie in the vast majority of cases that he examined. In reply to just criticisms he asked "why so many persons have been completely relieved from the most distressing symptoms by the use of the bougies when all other means had failed, if no real obstruction had existed in the intestine" a query which Dr. Van Buren characterized as an *argumentum a posteriori*.

³⁷Amer. Jour. Med. Sc., vol. lxxviii, p. 317.

³⁸Traites des Maladies du Rectum, Paris, 1877, p. 320.

This same idea applies to many similar delusions of the present day, among which may be mentioned the extraordinary number of strictures of the pendulous urethra, together with an equally extraordinary variety of symptoms supposed to be produced by them, all of which are "cured" by certain operative procedures not without danger and fully capable of producing and acting through a powerful mental impression. I am inclined to include in the same category also various cases of nephrorrhaphy for so-called floating kidney in which the symptoms before operation were somewhat vague and indefinite, as well as a large number of cases of castration for nervous disease already alluded to. The reported cures of traumatic tetanus by nerve stretching may also be mentioned in this list.

B. In seeking for a reasonable explanation of the phenomena observed in the above cases I have endeavored to formulate the conditions which were common to all, or nearly all of them, and have thought the following worthy of consideration:

1. Anæsthesia.
2. Psychical influence or so-called mental impression.
3. Relief of tension.
4. Reflex action or the "reaction of traumatism."

These influences were operative in the majority of the cases although not one of them, except the last, applies to the whole list.

1. *Anæsthesia*.—In my original very vague speculations (which, I may admit, have not become much more definite), as to the possible cause of the improvement in epileptics after such a variety of operations of such different grades of severity, it occurred to me that one constant factor was the production of anæsthesia and that it was conceivable that a disease of the nerve centers not reached by ordinary drugs might be affected by agents of such volatility and diffusibility as ether and chloroform. I accordingly, with the consent of my neurological colleagues, instituted a series of observations upon a number of epileptics in various stages of the disease at one of the hospitals with which I was connected. All other treatment having been withdrawn and the cases kept under observation for a time,

ether was given to the production of full anæsthesia at intervals of from forty-eight to seventy-two hours. The results were either entirely negative or the patients grew worse in consequence of the withdrawal of their bromides and after a trial extending over some weeks and in a considerable number of cases I satisfied myself that anæsthetization alone produced little or no effect in either the severity or the frequency of epileptic convulsions. In the majority of these patients the disease was, of course, of the idiopathic variety, but it must be remembered that in cases of supposed traumatic epilepsy in which nothing abnormal is found on operation the diagnosis has probably been incorrect, and the type of the disease is really idiopathic. The error is facilitated by the frequency with which scars and other relics of former traumatisms are found on the scalps of epileptics, injured during their convulsive attacks.

As applied to abdominal and other cases any marked influence of anæsthesia alone scarcely seems within the limits of possibility and need not be considered.

2. *Psychical influence.*—In discussing the effect of psychical influence it is necessary at the outset to admit that so far as the symptoms in any case are susceptible of explanation on the theory of hysteria or of imagination, their disappearance after a powerful mental impression is easily understood. But only a small proportion of my cases were of this character if the reporters may be believed. The epileptics were genuine epileptics and their paroxysms were attended with all the characteristic phenomena, including the personal injury and risk to life which seem to differentiate them from hysterical or feigned convulsions. The tumors were palpable or visible or both; the character of the tubercular growths was verified by the sight and touch of skilled observers. It may accordingly be assumed once for all that as regards at least two-thirds of the cases on which this paper is based, there were either undoubted symptoms which we habitually associate with organic disease or there was demonstrable and apparently unmistakable evidence of such disease. It must therefore be asked: Is it possible through influences acting upon the emotional or intellectual nature to affect the

organic processes of secretion, nutrition, etc., and, if so, is it conceivable that through the same influences pathological change may be arrested and reparative or curative action established?

An exhaustive reply to this question would lead us far afield, but I must briefly review the evidence which appears to justify a general affirmative answer.

History is full of authentic examples of the influence of the imagination and the mind upon the body.³⁹ The "miracles" of Mecca, of Rome, of Lourdes; the effects of the "royal touch"; the wonders wrought by Perkins and his "tractors"; the equally marvelous cures brought about by imitation tractors in the hands of his opponents; the modification and alleviation of actual epidemic disease, through faith in an individual, as by Victor Emanuel's visit to Naples during the cholera epidemic of 1865;⁴⁰ the occasional striking results of "faith

³⁹In all ages wonderful cures, real amid a multitude of shams, have been wrought at holy places dedicated to various saints of various cults. Among the throngs of pilgrims to Mecca, to the sacred rivers and temples of India, to the shrines of Buddhist hagiology, there are some who, having made the outward journey wearily and painfully, do indeed turn homeward with the gift of health. A proportion of those who have limped or been carried to Lourdes and to a hundred other holy places of the Catholic Church, do leave behind them crutches that they no longer require. Some of the sufferers who worshiped the Holy Coat at Treves did truly receive in restored health the reward of their faith. Some wearers of relics and amulets are really the better for possessing them. The cheered, uplifted and convinced mind works, sometimes with startling rapidity, on the diseased body.

For this same reason, touching the king's evil did no doubt effect many cures. The royal progresses were announced some time beforehand, and the sufferers along their route had often weeks in which to cherish the expectation of healing, in itself so beneficial; and in those days of faith, when a belief in the divine right of kings was universal and strong, the touch of the royal hand must, except in the most hopeless cases, have had a stimulating effect, which may often have caused a healthful reaction.—"Psycho-Therapeutics." By C. Lloyd Tuckey. 1889. Pp. 10 to 11.

⁴⁰During the famous siege of Breda, in 1625, the garrison was afflicted with scurvy in a most dreadful degree. When the Prince of Orange heard of their distress, and understood that the city was in danger of being delivered up to the enemy by the soldiers, he wrote letters addressed to the men, promising speedy relief. These were accompanied with medicines against the scurvy, said to be of great price, but of still greater efficacy; many more were yet to be sent them. The effects of this deceit were truly astonishing. Three small phials of medicine were given to each physi-

cure" and "Christian science," and of homœopathy and the other "pathies" at the present day, are well-known examples of the undoubted therapeutic power of the mental or cerebral processes or conditions under certain circumstances. But in the majority of these cases pain, the most uncertain and indefinite of all symptoms and the one most influenced by the personal equation, was the phenomenon chiefly affected; or loss of power, almost equally vague when not studied scientifically and by modern methods; or perhaps the secretions merely were modified advantageously as the "fluxes" of cholera, fear producing relaxation of the vessels as seen in the sweats and diarrhœa of young soldiers on the eve of their first battle, faith and hopefulness counteracting this tendency. All this is easily explained when we remember the antagonism which exists between the two great divisions of the nervous system as regards vascularity, a fact which underlies many of the striking physical phenomena associated with varying mental states.

The normal equilibrium which we witness between the cerebro-spinal and the sympathetic systems, as respects their influence upon the blood-vessels, is obviously more or less interfered with, when the brain transmits a more than wonted impulse; allowing the unrestrained action, or paralyzing the influence of the sympathetic vaso-motor nerves.

The application of a similar principle, in regard to the functions of the cerebrum and the spinal cord, explains the unbalanced action of the latter when the former is temporarily paralyzed by mental shock, and probably goes far to elucidate

cian, not enough for the recovery of two patients. It was publicly given out that three or four drops were sufficient to impart a healing virtue to a gallon of liquor.

The effect, however, of the delusion was really astonishing, for many were quickly and perfectly recovered. Such as had not moved their limbs for a month before, were seen walking the streets sound, straight and whole. They boasted of their cure by the Prince's remedy; the motion of their joints being restored by a simple friction of oil; and the belly now of itself well performing its office, or at least with a small assistance from medicine. Many who declared they had been rendered worse by all former remedies administered recovered in a few days, to their inexpressible joy, and the no less general surprise, by their taking (almost by their having brought to them) what we affirmed to them to be their gracious Prince's cure.—*"Of the Imagination as a Cause and as a Cure of Disorders of the Body; Exemplified by Fictitious Tractors and Epidemical Convulsions.* By John Hygarth, M.D. 1801. Pp. 29, 30.

the remarkable influence of the emotions in causing convulsive disorders.⁴¹

But before we can assign to this cause any important share in the production of the benefit following operation in such cases as we are considering we must examine the existing evidence as to its possible influence upon morbid as well as upon physiological processes.

A belief in this power has been common in the profession for many years. John Hunter said "as the state of the mind is capable of producing a disease another state of it may effect a cure." Benjamin Rush wrote that he had frequently prescribed remedies of doubtful efficacy in the critical stage of acute diseases, but never till he worked up his patients into a confidence bordering upon certainty of their probable good effects. He adds that the success of this measure much oftener answered than disappointed his expectations. Tuckey thinks⁴² that continuous fixation of the mind upon one special organ predisposes to disease of that organ and cites illustrative cases, as the death of Trousseau from cancer of the stomach.

Forbes Winslow⁴³ goes so far as to say that "it is a well established fact that alterations of tissue have been the result of a morbid concentration of the attention to particular organic structures."

As an example of the extraordinary effects of purely psychical impressions I may mention the case narrated by MacKenzie,⁴⁴ in which a patient who was subject to attacks of rose cold, was shown an artificial rose at a time when her nostrils had just been examined, her conjunctivæ were normal, the nasal passages free and there was nothing to indicate the presence of her trouble. Dr. MacKenzie describes as follows the result of showing her the rose, which was a clever counterfeit: "In the course of a minute she said she felt that she must sneeze. This sensation was followed almost immediately by a tickling and intense itching in the back of the throat and at the end of the nose. The nasal passages, at the same time, became suddenly ob-

⁴¹Influence of the Mind upon the Body. By D. H. Tuke. Vol. ii, p. 288.

⁴²Psycho-Therapeutics, 1889, p. 4.

⁴³Obscure Diseases of the Brain and Mind, London, 1860.

⁴⁴Amer. Jour. Med. Sc., vol. lxli, p. 49.

structed, and the voice assumed a hoarse, nasal tone. In less than two minutes the puncta lachrymalia began to itch violently, the right and afterward the left conjunctiva became intensely hyperæmic and photophobia and increased lachrymation supervened. To these symptoms were added, almost immediately, itching in the auditory meatuses and the secretion of a thin fluid in the previously dry nasal passages. In a few minutes the feeling of oppression in the chest began, with slight embarrassment of respiration. In other words, in the space of five minutes she was suffering from a severe coryza, the counterpart of that which the presence of natural roses invariably produced in her case. An examination of the throat and nasal passages was then made. The right nostril was completely obstructed by the swollen, reddened, irritable turbinated structure; the left was only slightly pervious to the air-current; both were filled with a serous-looking fluid. The mucous membrane of the throat was also injected, but did not exhibit the same amount of redness and irritability found in the nasal passages."

Leloir⁴⁵ has called attention to what he calls "*dermatoses par choc moral*." He reports cases of cutaneous anæmia, ("*local syncope*"); of cutaneous hyperæmia, such as erythema and urticaria; of hæmorrhage, such as purpura; of inflammations, superficial and catarrhal; of herpes; of pemphigus, and even of psoriasis; produced by various forms of nervous shock. He has been most careful to establish the proper relation of cause and effect, excluding all cases in which skin diseases had previously existed or in which there had been any chronic predisposing condition of any sort. He believes that in patients not susceptible the shock would produce simple vaso motor phenomena more or less transitory, while in the susceptible subject the effects are both more intense and more permanent. He quotes Charcot, Vulpian, Brown-Sequard and Westphal, to show that grave nervous affections even resulting in death may follow shock, and refers to the well-known effect of fear upon the intestinal and urinary tracts as corroborative evidence. Similar cases are reported in extenso by one of his pupils, M. Lévêque.⁴⁶

Bouchard⁴⁷ has shown the influence of similar nervous shocks in the production of attacks of gout.

⁴⁵Ann. Derm. and Syph., second series, vol. viii, 1887.

⁴⁶Contribution à l'étude des Maladies de la Peau produites par un Choc Moral, Thèse de Lille, 1887.

⁴⁷Lecons sur les Auto-Intoxications, Paris, 1887.

Further evidence of the same sort has been recorded by M. Le Brun.*⁴⁸

Dr. R. W. Taylor sends me the following interesting case:

A lady, æt. 36, of fine physique, never before sick, married, mother of one child, was suddenly informed of the death of her husband. She fainted away and when restored she noticed a burning sensation of the whole face and neck (no local applications had been made while she was in the faint). Within a few days erythematous eczema set in and ran a very severe course, leaving her with a tendency to scaling eczema of the ears ever since. This case was completely analyzed by me, and set down in my records as one of eczema from mental shock. I have seen a few more, but not any which presented such a clear history as this one.

New York, March 27, 1891.

Dr. James Nevins Hyde writes me in reference to this phase of the subject:

I remember distinctly that Dr. Detmold used to produce astonishing effects (for the time being at least) in the cure of stammering by thrusting a heated needle into the tongue, and he used to produce roars of laughter in his class by his comical descriptions of cases of this kind.

You are of course familiar with the remarkable cures produced by "taking the eye out and scraping it and putting it back" into the orbit, the actual operation having been perhaps so simple an affair as the eversion of one of the lids, or perhaps a still simpler manipulation of this part.

I reported not many years ago the details of a case in which a gentleman in moderate circumstances was suddenly informed that he had inherited a large property. For several hours after learning of this fact he was in a state of intense cerebral excitement, and his hair, which had previously been of a light brown shade, became red; and

*The *curative* effects of shock are illustrated by the following case: "Eve's Surgical Cases," p. 725, from *Brewster's Philosophical Journal*. A man so much palsied in his limbs that for three years he had not been able to walk over one-half mile, took passage on a sailing ship to New York. During the first days of the voyage he was never seen to stand up. The vessel was struck by lightning; the rod of the conductor (four feet long and five and one-half inches in diameter) was melted. After this the man was seen parading the deck, and his power was completely restored.

⁴⁸Thèse de Doctorat, Lille, 1886.

the distinctive line between the previous color and that to which it had changed was not only distinctly recognized at the time of my examination but also seen plainly in the hairs which I exhibited to the American Dermatological Association. Other cases have been reported of remarkable and sudden changes in the hair-color due to nervous excitement of various sorts, one such reported from Washington, where the hair suddenly turned black in the case of a young woman suffering previously from other ailments.⁴⁹

All these cases are subject to the possible explanation that under the influence of the nervous excitement there occurs an exceedingly profuse diaphoresis, and the excessive sweat in a debilitated subject will sometimes wash the pigment to the surface and produce not only in the hairs but upon the surface of the skin very singular changes.

I am sure you have seen some thin and nervous women, say between the ages of 20 and 35, for the most part unmarried, who, when greatly fatigued or when the nervous system had been agitated from other causes, have exhibited singular black streaks about the lips and temples, which were by their friends supposed to be the accumulation of soot upon the surface, but were really due to the deposit of pigment in this locality, such pigment being often sufficient in quantity to soil a linen handkerchief wiped over the surface.

Chicago, Ill., March 19, 1891.

It has been demonstrated and is not now disputed that nerves may act directly upon cells, pigmentary, secretory, and other tissues without the intervention of blood-vessels.

Lister's observations on the pigmentary cells in the web of a frog's foot have proved that change of color is there "dependent upon molecular movements carried on in the interior of cells under influence of the nervous, and under circumstances which exclude the intervention of the blood vascular system"; and, as Prof. Rolleston observes, "A force which can be seen to produce molecular movement within a pigment cell, may well be supposed to be competent to produce nutritional or

⁴⁹Dr. D. W. Prentiss has recorded two cases of remarkable change in the color of the hair during treatment with pilocarpin, one of them occurring in a young woman, æt. 25, the other in a baby, æt. 14 months. In the first case the hair between November, 1879, and May, 1881, changed from a light blonde with a yellow tinge to a pure black. In the second case the change was less marked, and was rather a difference of shades than of color. *Phila. Med. Times*, July 2, 1881, and August 13, 1881.

chemical changes in the interior of cells of other characters."⁵¹

It seems fair to assume, therefore, that psychical influence abstractly considered possesses the potency to effect many of the causes we are considering. That it has done so I do not pretend to assert. It would leave unaccounted for the curative effect of these operations in imbeciles; as well as my failures to affect epilepsy by anæsthetization when the mental effect was the same as if an operation had been performed. Still we must unquestionably admit that it is a therapeutic force, at present quite beyond our control, but possibly capable of future scientific employment.

Forty years ago Mr. James Baird⁵² undertook a laborious course of experiments on patients in waking conditions, as well as on others when in the hypnotic state, by which he thought he had demonstrated, not only that an act of fixed attention, on the part of a patient, directed to any organ or part of his body, was adequate to change the normal condition of the organ or part, both as regarded sensation and function, even during the waking condition; but that he also had proved that, through audible suggestions, the function of any organ or part might be excited or depressed with great uniformity, or varied according to the suggestions of a second party, conveyed in an energetic and engrossing manner. Especially was this the case if the patient or subject possessed a vivid imagination, and lively faith in the fulfillment of the prediction. Mere fixity of attention clearly brought out an exalted manifestation of the naturally predominant susceptibility of the organ or function upon which attention was fixed; but fixity of attention, together with an expectant idea as to the peculiar result to be anticipated, was generally followed by a result corresponding precisely with the dominant expectant idea in the mind of the patient during his fixed act of attention.

Hypnotism, however, fell into undeserved disrepute and it is only of recent years that an attempt has again been made to give this form of

⁵¹Tuke, *Op. Cit.*, vol. i, p. 145.

⁵²Hypnotic Therapeutics, *Monthly Journal Medical Science*, vol. viii, 3d Series, p. 18, 1853.

psychical influence a place in practical therapeutics. Tuckey and others detail some most interesting experiments in this line. Prof. Delboeuf, of Liege, for example, desiring to ascertain the positive effect of hypnotic suggestion in the treatment of a burn, and being of course unable to find two persons of identical constitution and condition generally, used the ingenious device of producing, with caustic, two exactly similar burns on the same person—one on each arm—and of treating one wound by curative suggestion, combined with the usual remedies, and the other with the usual remedies only. Having induced hypnotic sleep, he suggested to the patient that the one arm should be cured painlessly and without any suppuration; and it did in fact heal, by simple separation of the slough and healthy granulation, ten days earlier than the other, which went through the suppurative process, accompanied by inflammation and pain. Tuckey⁵³ adds: "Were this case not reported by a well-known savant, I confess I should feel some hesitation in recording it here; as it is, its accuracy is beyond doubt."

Professors Bourru and Buret, of Rochefort, succeeded in causing hæmorrhage from the nose by suggesting that it should take place in a young soldier of epileptic and hysterical constitution; they even fixed the hour when it should come on. On this same subject Dr. Mabile⁵⁴ of the lunatic asylum at Lafond, produced instantaneously, by suggestion, hæmorrhage from different parts of the body, exactly similar in character to the stigmata of some mediæval saints.

Prof. H. C. Wood⁵⁵ has recently experimented upon the therapeutic effect of hypnotism without suggestion in two cases; one of tremors simulating paralysis agitans; the other a sufferer from paraplegia.

The history of the first case was that some years previously the woman had been attacked by tremors like those now present, but had recovered after three years' illness; that about three months before entering the ward of the hospital the tremors had returned. They had stopped at one time for two weeks, but when the case was taken in charge they were continuous in one arm, and exactly simulated those of true paralysis agitans. This woman was found to be a good subject for hypnosis. The tremors continued during the hypnotic sleep. No hypnotic suggestions whatever were made to her, but the second

⁵³Psycho-Therapeutics or Treatment by Hypnotism. Wood's Medical and Surgical Monographs, vol. iii, p. 755.

⁵⁴Op. Cit., vol. ii, p. 754.

⁵⁵Lancet, Jan. 11, 1890: Amer. Jour. Med. Sc., vol. llix, p. 286.

treatment was followed by great lessening of the tremors, and four treatments sufficed for a cure.

In the second the paralysis of the legs was almost complete, associated with irregular patches of anæsthesia on the legs, absolute loss of the patellar reflexes, and great complaint of weakness and numbness in the arms. The woman had not the appearance of being hysterical, but the diagnosis of hysterical paraplegia had been made by Dr. Dercum. The ordinary treatment had been instituted without avail. During the hypnotic treatment no suggestions were made to the patient. After the second seance the numbness disappeared from the arms; after the third the woman was able to stand; after the fifth she could walk. after eight treatments she was able to walk long distances, stand very well on one leg, and was about to go from the hospital as cured, although her knee jerks had not returned.

Dr. Wood does not commit himself to any theory as to the method in which hypnosis produces cure, although as yet he does not see why all the effects obtained cannot be accounted for on the theory of mental influence. For the exertion of such influence it is not essential that the physician should speak to the patient specifically about his or her case; especially is this true at the Paris and Nancy Clinics, since the whole atmosphere is heavy with faith. The patients come to be cured of their diseases; they undergo a process which to the ignorant is most mysterious, and which even educated people must, until they are accustomed to it, look upon as 'uncanny.' The elements of profound mental impression are all present, and it needs no words of the physician to bring them into action.

In discussing this branch of the subject with the admission that we are not yet prepared to estimate the full value of the *mental* effect of much of our operative work I cannot refrain from an allusion to its application to the current statistics in a particular line of abdominal surgery.

In these days of somewhat indiscriminate oophorectomy many cases are operated upon and are truthfully reported as "cured" when, to the unprejudiced eye, but little actual disease appears to have been found.

When one recollects how many such cases undergo an unaccountable spontaneous cure, how often the symptoms cease after some mental impression or physical shock, or a perseverance in some extraordinary position, how many fruitful but painful ovaries have been saved by

Dr. Weir Mitchell's systematic treatment, and how often it has happened that a threatened, simulated, or imperfect operation has been enough to frighten or charm away all acquaintance with suffering, doubt falls upon both the asserted necessity and the reputed success of the operation itself. It can never be determined how much is due to the amputation, how much is a psychical phenomenon. How many women have been doomed to sterility that would have been equally relieved by a farce or a failure, can never be made out. But it is a query which takes the gloss off a mass of statistics.⁵⁶

3. *Relief of tension*.—Although it is not true that in every case described in this paper relief of tension was afforded, there can be little doubt that this was an important factor in many of them. Assuming that if preternatural tension existed in the cranial cavity, it would be relieved to an extent by trephining, we find few exceptions to the rule that in each case something was done which lessened tension in a cavity or organ of the body.

With respect to the meaning of the word "tension" as employed in surgical work, and particularly in clinical work, Bryant's⁵⁷ definition may be accepted. According to him it means the pressure brought about by the stretching or distension of tissue from either the growth of some neoplasm or the effusion of some fluid; tension, in this sense, meaning distension or the stretching of parts by a force acting from within—by centrifugal pressure.

In some of the cases, as those of supposed renal calculus, for example, the relief afforded by the division of the capsule of a possibly engorged and swollen viscus may be readily understood. The application of the principle to cases of epilepsy is not so clear.

Dr. Thomas Oliver,⁵⁸ after reporting a partially successful case of trephining for epilepsy (see table) says: "Gowers speaks of having seen or heard of 65 cases of epilepsy owning a traumatic cause, and of trephining as the only line of treatment likely to be successful, and

⁵⁶Sir Spencer Wells, *Amer. Jour. Med. Sc.*, vol. lxxii, p. 467-8.

⁵⁷Tension, as Met with in *Surgical Practice*, by Thos. Bryant.

⁵⁸*British Medical Journal*, Feb. 4. 1888.

that, be it remarked, as in my own case, where neither disease of bone, membrane or surface of the brain was found at the time of operation. Relief comes either from the operation acting as a strong counter irritant lasting all through the period of healing, or from the reduction of tension consequent upon the escape of pent-up serum."

In the cases of abdominal section, especially those attended with the presence of tympany or ascites, the powerful influence upon the whole economy produced by the relief of tension is obvious. Braxton Hicks⁵⁹ has well described the conditions in such a case.

The effects of the pressure on the circulation would be similar to that which takes place during inspiration, only that it would be constant and more severe, whilst the "respiratory tension" would increase it still more. Thus the blood on endeavoring to enter the abdomen would be retarded both from above and below, and the return current from the lower extremities would be impeded, with this additional disadvantage that the aorta, although itself pressed upon, yet would overcome the resistance better than the veins; and this would increase the venous turgescence and engorgement in the legs, and produce a tendency to œdema. The same effect, though not so marked at first, would take place above the abdomen, partly by the difficulty of executing the respiratory act, and partly by the detention of the blood in the aorta, and the consequent embarrassment of the circulation in the heart. The portal system would be interfered with, and the return current from the lower rectum impeded. The general circulation in the portal system would be checked, and this, with the retardation of the cardiac current, would tend to engorgement of the liver. In like manner would all the abdominal organs be interfered with and their proper action checked. The kidneys, for instance, would find greater difficulty in excreting urine, and what quantity was formed would find a difficulty in making its way into the bladder because of the pressure on the ureters. The bladder also would be less able to expand. Again, the pressure on the intestinal structures would retard the functions of assimilation, and the nutrition of the body would be thereby diminished. Also pressure on the sympathetic ganglia and nerves tends to depression of their functions, and notably the cardiac, thus forming one, and not the least, factor of many that lead to death in abdominal diseases.

⁵⁹The Proceedings Med. Soc. of London, vol. vi, pp. 336-337.

Muret,⁶⁰ in an elaborate article on the treatment of ascites by faradization of the abdominal walls, has called attention to the fact that all the methods which have been employed with success in the treatment of ascites have in some way produced a diminution of intra-abdominal pressure. He includes the use of purgatives and of early tapping and in relation to the latter refers to the papers of Murchison, Gintrac, Austin Flint, Ewald, Jacoby and others.

His own results are exceedingly interesting in their relation to the question of the influence of abdominal tension.

A diminution of this tension would manifestly alter the blood supply to any important organ in the body and with it the nutritive processes, local and general, but we can say no more with definiteness except as it applies to cases of ascites, in which, as in cases of hydrarthrosis, one tapping may prove permanently curative because the original source of irritation and hypersecretion had already disappeared.

4. *Reflex action*.—Under this head may be included the “reaction of traumatism”, as well as the effects of revulsion and counter-irritation.

Verneuil,⁶¹ in a paper calling attention to the influence exerted by prior lesions of the liver on the progress of traumatic lesions, long ago emphasized the fact that any traumatism, however slight, sometimes excites in the entire economy a general perturbation and sometimes by a kind of selection of the weak point a sudden and violent aggravation of lesions that are only slight or that slumbered.

It seems to me that this same excitement, usually prejudicial, may occasionally be curative, although it must be admitted that these are vague terms and that even if the explanation is correct it is yet far from final.⁶²

In endeavoring to account for the cause of cure in the case of spinal surgery already detailed (see page 37) Dr. Dercum and I were compelled to invoke this reaction of traumatism. We discussed the case as follows:⁶³

⁶⁰Revue de Médecine, Paris, 1888, vol. 8, p. 719.

⁶¹Gazette Hebdomadaire, Oct. 8, 1875.

⁶³ANNALS OF SURGERY, July, 1890.

"A question of great theoretical as well as practical interest now presents itself. In looking back over the case, we ask ourselves what is the rationale of the recovery? What was it that the knife accomplished that resulted so happily to the patient? Evidently it could not have been the mere relief of pressure. The cord lies loosely within the spinal canal, and the dural thickening observed by us could not have encroached materially upon its territory. The adhesions, however, must have played an important part in the production of the symptoms, and the actual service accomplished by the knife is here very evident. That, however, the adhesions were sufficient of themselves to explain all of the symptoms it would be absurd to assume. Doubtless the case was one in which a more or less diffuse myelitis existed, associated in the upper dorsal region with a marked meningitis, the latter involving both membranes. In this way only can we account, on the one hand, for the pain elicited on percussive flexion and transmitted shock, and, on the other, for the widespread paralysis and the trophic changes.

Is it not proper, then, to assume that the result achieved in this case is due, not alone to the laying open of the dura and the destruction of adhesions, but also to a reaction of nutrition, the result of the surgical trauma? Certainly surgery is not wanting in instances of such reaction, as witness the occasional recovery in tubercular peritonitis as a consequence of laparotomy. It would seem as though the local shock had been promptly followed by a corresponding reaction in which the vitality of the tissues had been raised sufficiently high to determine a return to the normal state. Certainly the case before us is not only unique but exceedingly suggestive."

As evidence of the extraordinary pathological changes that may be brought about by factors but little understood, I may instance the experiments of E. Mendel, (*Neurolog. Centralblatt*, May 15, 1884), who, believing that hyperæmia was an important feature of the early changes in general paralysis, sought to excite an intense chronic hyperæmia in dogs. For this purpose he fastened the animals on a revolving table with their heads toward the periphery. Rapid revolutions, 125 to 130 a minute, continued for half an hour, produced punctate hæmorrhages. Slower revolutions (110) for six minutes a day, produced, after some weeks, symptoms of general paralysis, and, on killing the animals, he found adhesions between the skull, the meninges, and the brain, an increase in the nuclei and cells of the glia, an increase in the number of vessels, and changes in the ganglion cells. This condition finds a clinical representation in a case recently reported by Bernhardt (*Deut. Med. Woch.*, March 29, 1888), where symptoms of general paralysis developed gradually after a railway injury. Furstner (J. Holland, *Archiv. f. Psychiatrie u. Nervenkrankheiten*, vol. xix, p. 438, 1888), has reported Mendel's experiments with fewer revolutions (60 to 80) for a shorter time (1 to 2 minutes) and continued for months. He found

double primary degeneration of the lateral columns and of a particular part of the posterior columns, changes in the optic nerves, and changes in the brain similar to those found by Mendel. Similar changes in the lateral columns have been found after death, in patients who have suffered from "concussion," by Dumenil and Petel, and also by Edes, (*Boston Med. and Surgical Journal*, September 21, 1882. —(Nervous Affections following Injury, by P. C. Knapp, *Boston Medical and Surg. Jour.*, vol cxix, part 2, p. 451, 1888).

But there may be more than local shock to account for marked changes in either pathological or normal structures. The reciprocal influence of one portion of the body on another in both health and disease is a most interesting but as yet unsolved problem. Many years ago Tholozan and Brown Séquard showed⁶⁴ that by lowering the temperature of one hand a sensible reduction of the temperature of the other could be brought about without affecting the general temperature of the body. This we can now understand. But what is the relation between the parotitis of mumps and the orchitis which so often complicates it? Why do a certain proportion of the cases of severe burn die from perforating duodenal ulcer? Why do we have amaurosis from dental caries or paraplegia as a result of renal calculus? Why, in a gouty person, is the swelling of the metatarso phalangeal joint of the great toe accompanied by a disappearance of the gastric dyspepsia? Why are liver diseases associated with retinal change or mucous polyps with asthma?

While the majority of such questions as these remain unanswered, we can scarcely venture to deny the possibility of operative interference at least occasionally producing curative effects though the rationale of its action remains a mystery. Still more striking examples of the reciprocal influence of tissues remotely connected are to be found in the few carefully observed cases of so-called "maternal impressions" among the host of nonsensical cases of the same sort that have found their way into the journals.

One of the most remarkable of these cases has been recorded by Dr. William Hunt.⁶⁵ A woman when eight

⁶⁴See a paper by Dr. John Ashhurst, on "Nervous Action." *Amer. Jour. Med. Sciences*, vol. xl, p. 105.

⁶⁵*Amer. Jour. Med. Sc.*, vol. lxxxix, p. 186.

and a half months pregnant, received extensive burns of the surface of the body. Labor came on the next day and a well-formed but dead female child was born, apparently blistered and burnt in extent and in places almost exactly corresponding to the injuries of the mother. The figures which accompany Dr. Hunt's article are exceedingly striking and it is difficult to believe that the occurrence was simply a coincidence.

There remain some special points in connection with abdominal tumors and with peritoneal tuberculosis which require mention. We should not ignore the possibility of the spontaneous disappearance of a tumor, the relation to the operation being coincidental.

Dr. Thos. Dwight has reported such a case in which a large, hard, rectal tumor disappeared, and says there seems to be little doubt that tumors of various kinds do, though very rarely, disappear without surgical interference.

Esmarch, of Kiel, told Paget that he had seen cases of recurrent fibroid tumor cured, and not again returning, in patients who had taken large doses of iodide of potassium for several weeks. Dr. Duhring reported in *The Archives of Dermatology* for January, 1879, a remarkable case of so-called inflammatory fungoid neoplasm. In brief, a woman, otherwise healthy, for some two and a half years before her death had a great number of tumors, chiefly in the chorium or subcutaneous tissue, which presented the most surprising variations of size, sometimes entirely disappearing. The microscope showed them to consist essentially of a hypertrophy of the fibrous elements of the chorium, and a varying amount of granular and other cells.

Dr. Coats exhibited for Dr. Gairdner specimens from a similar case before the London Pathological Society in April, 1879. The tumors were found also in the connective tissue at various places inside the abdomen. The growths were held to be lymphadenomatous. Sir James Paget made some remarks in the discussion which deserve to be reproduced. He said "the report of such a case was useful, as likely to help in the explanation of these rare instances in which tumors diagnosticated to be cancerous had disappeared after a time. He suspected that there was a greater number of such cases on record than might be imagined, and the collection of them would be an interesting and important undertaking. Three cases of the disappear-

ance of tumors in this way were known to himself. One was in the person of a young man who had suffered for two or three years from what appeared to be ordinary lymphadenomatous growths in the neck, axilla and groins. Within a week these tumors all suddenly disappeared, but the patient then began to suffer from dyspnœa, and soon afterward died. Another case he regarded as one of multiple medullary cancer (what would now be called small celled sarcoma), and the microscope corroborated this diagnosis. The growths occurred on the neck and axilla. There was a very large mass over one deltoid, which suppurated and sloughed, during which process nearly all the other growths disappeared. The man recovered, and enjoyed good health for some months but the growth afterward recurred and caused death. The third case was one which he had diagnosticated as medullary cancer of an undescended testis. There was a tumor as large as two fists, and he had prescribed liquor potassæ and iodide of potassium, under which treatment the mass soon entirely disappeared. In eight or ten weeks, however, it recurred, but disappeared again under the same treatment. This also happened a third time, but having recurred a fourth time, it was no longer amenable to treatment, and the patient died. The microscope confirmed his original diagnosis as to the nature of the growth." Other gentlemen mentioned somewhat similar cases.

An interesting paper on the sudden disappearance of tumors, by Dr. Fischer, of Breslau, is to be found in the *Deutsche Zeitschrift f. Chir.* vol. xii, 1879. Dr. Fischer calls attention to the fact that in certain very prostrating diseases tumors of some kinds suffer a great reduction in size, and among these are sarcoma, adenoma, and swellings of lymphatic glands. The cases he reports are chiefly of enlarged lymphatic glands and of enlarged thyroids. Some of the glandular tumors were greatly affected by the removal of other tumors. One of the enlarged thyroids returned to its proper size during a light attack of scarlatina.⁶⁶

Eve cites (Eve's Surgical Cases, p. 816) from Warren on Tumors, case of female with tumor of submaxillary gland, size of egg, very hard; removal advised, but patient objected. Active local treatment for a number of weeks made no improvement. Patient finally asked if an application recommended to her would be safe; this was an application of a dead man's hand three times to the diseased part. Being assured no harm could result, the application was made, and she reported later with the tumor actually gone.

⁶⁶The Disappearance of Tumors, Boston Med. and Surg. Jour., 1880, vol. xxvi, p. 562.

As to the cure or amelioration of growths thought to be malignant by a merely exploratory operation, the idea seems opposed to all our modern theories as to the etiology and causation of such neoplasms. A long search through the literature of the subject has been met with but little success. Few claims of permanent cure by any methods short of complete excision are made by respectable authorities, and we all know how lamentably rare are such cures even after the most thorough removal.

Perhaps the most interesting case which I have found is one, that of Dr. Twitchell, of New Hampshire, a well known surgeon of New England, recorded by Dr. H. J. Bowditch.⁶⁷ His grandmother had died of carcinoma mammæ; his sister of scirrhus pylorus. At the age of 60, a small hard tumor developed at the internal angle of the right eye. Three years later this had become so large that it was removed by operation, but promptly returned, and became a ragged, hard, elevated ulcer, thought by Dr. Bowditch and the patient himself, and a number of eminent surgeons, to be undoubtedly malignant. All local applications failed to modify its course, and Dr. Twitchell finally decided to give up all use of medicines internally, or of external applications, but to try a course of the most rigid diet. Starting from a theory that malignant diseases arise from the fact that we take too much carbon into our system, he determined to live, from that time, upon a bread and milk diet, and if, at the end of some months, he did not find any diminution in the disease, he determined to use nothing but bread and water. The immediate result was most favorable, and Dr. Bowditch two years later could scarcely discover the cicatrix. Whether it was Dr. Twitchell's diet, or his belief in it, that was the effective agent cannot be determined.

Other and final points deserving of special mention, as they do not fall in satisfactorily with any of the suggested explanations, but may, perhaps, be better understood on general pathological grounds, are the relief of abdominal pain and the cure of tubercular peritonitis by so-called simple exploratory operation.

As to the first point the experience recorded by the follow-

⁶⁷Charleston Med. Jour., November, 1849.

ing writer has, undoubtedly, been that of many others and clears up much that is otherwise mysterious.

Sir Spencer Wells⁶⁸ says: In my fifth case the two ovaries had been amputated by surgeons of renown in Holland, at different times, without permanent benefit. At my operation there was no trace of another ovary, and what I did was to separate part of the omentum and a coil of the small intestine from the uterus to which they were attached, and to divide another piece of omentum which adhered to both the fundus uteri and the cicatrix in the abdominal wall. Here the two castrations did no good. The liberation of abnormal connections near the seat of the pain was what was wanted, and must be regarded as something more than the completion of the two oophorectomies.

L. Prochownick is of the opinion that much of the success claimed for operative interference in tubercular peritonitis is attributable to errors of diagnosis, and that the same also applies to other forms of peritoneal inflammation. He believes that after many cases of acute pelvic peritonitis adhesions of the omentum to the pelvic organs occur and give rise to intestinal and gastric symptoms, such as vomiting, gastralgia, nausea, abdominal distension, rectal and vesical tenesmus, constipation or diarrhœa. Adhesions to the generative organs in the female cause dysmenorrhœa, umbilical pains, etc. It may well be that in many cases of so-called exploratory abdominal incision followed by the disappearance of this or similar symptoms, the good result has been obtained by breaking up of these omental adhesions.⁶⁹

Howitz states that he has observed several cases in which he performed laparotomy for relief of severe pain, attributed to disease of the adnexa, and found adhesions between the omentum and the posterior surface of the symphysis pubis. The pain was entirely relieved by simply detaching the adhesions. The patients were under observation sufficiently long to demonstrate the fact that the relief was permanent. He details an interesting case of a patient, æt. 36, who had suffered from abdominal pains since the age of 17, and had been treated for ulcer of the stomach, for pelvic trouble, had used pessaries, had tried massage, etc. Separation of the omentum from the symphysis in this case resulted in a complete cure.⁷⁰

⁶⁸Amer. Jour. Med. Sci., vol. xvii, p. 467.

⁶⁹Deut. Med. Woch., No. 24, 1889; ANNALS OF SURGERY, October, 1889.

⁷⁰Cent. f. Gynakologie, August 3, 1889.

In this relation the following communication from Dr. H. C. Coe, of New York, is of much interest.

The expression "exploratory incision" or "exploratory laparotomy" has been used quite loosely to signify an abdominal section in which there has been no actual *removal* of a diseased organ or neoplasm. In my opinion this leads to serious error when we come to estimate the results of these operations, since we are constantly liable to regard an "exploration" as synonymous with an "incomplete" section. My idea of a pure "explorative laparotomy" is one in which a small incision is made, and the finger is introduced for diagnostic purposes, and is withdrawn as soon as the diagnosis is settled, *without any further manipulation*. If adhesions are broken up, if a displaced organ is replaced, if a sac is emptied by pressure (such as evacuation of the contents of a pyosalpinx into the uterus), this manipulation ceases to be a pure exploration, and is to be regarded rather as an "incomplete" ovariectomy, in which an adherent cyst is emptied and stitched into the wound. In this strict sense an abdominal incision with the evacuation of even a small quantity of ascitic fluid is not a simple exploration, since the removal of the fluid implies more important results than a pure digital exploration without further interference. This may seem like a refinement of terms, but I would simply call attention to the clinical side of the question. Very few operations reported as purely explorative are rightly so termed. We open the abdomen, find that we have to do with pelvic tumors which are firmly adherent, and decide not to remove them, but rarely stop there. Either intentionally, or in attempting to make a more thorough examination, we separate adhesions (perhaps very slightly) and find that our patients are considerably relieved. This result often appears miraculous. I have seen it repeatedly, but it is rarely, or never, permanent, since the adhesions naturally tend to reform. Again, the removal of ascitic fluid (perhaps only a small proportion of the whole amount) without removal of the *cause* may result in decided benefit, whether by a change in the intra-abdominal circulation, by relieving pressure, or (as Tait thinks) by direct atmospheric influence, we can not say—that it does is an established clinical fact. It is unnecessary in this connection to refer to the value of drainage in cases of uncomplicated tuberculous ascites, since these come under another category. Lastly, I cannot recall a case in which digital exploration *alone* (without separation of adhesions or evacuation of free or confined exudation) has ever *permanently* relieved *bona fide* symptoms. When it has apparently done

so, there has been a strong neurotic element present, so that it was difficult to determine whether the cure was not more *moral* than *physical*. Personally, I can not understand Mr. Tait's statements regarding the disappearance of abdominal tumors after pure explorative laparotomy (as I have defined it), where *nothing else was done except to open the abdomen*. The question arises, might not these tumors (such as fibroids) have diminished spontaneously?

New York, March, 18.

Dr. A. W. Johnstone, of Cincinnati, writes me somewhat to the same effect.

My belief is that in abdominal surgery where the relief, of which you speak, comes, that there has been a low peritonitis, or else a papillomatous growth which has been overlooked by the operator and which is cured by the alteration of the nutrition, incident to the operation. For an instance, in the practice of my former assistant, Dr. Harry Gowen, of Danville, Ky., in his first laparotomy for a supposed traumatic peritonitis (from a blow on the abdomen) there was no serous effusion into the cavity, and nothing could be found except a general reddening of the peritoneum. The drainage tube, however, discharged quite freely for several days and the patient was completely cured. An untrained eye would have taken this for a healthy peritoneum, but I am sure there was a low form of inflammation which the drainage cured.

In this same way simple papilloma of the peritoneum I have seen cured by drainage. I have also seen it disappear after simple incision when no drainage tube was left.

I think papilloma of the peritoneum is like papilloma anywhere else, it sometimes takes a very slight alteration of the nutrition to make it entirely disappear. It is so frequently seen in the papilloma of the fingers of druggists.

In conclusion, I would say, that my belief in regard to these cases is, that there is a true pathological condition which has been overlooked in the operation, and that in proportion to a man's experience in abdominal work, you will find inversely a number of these cases occurring.

Cincinnati, Ohio, March 26, 1891.

Finally, as to the rationale of the cure of tuberculosis of the peritoneum. Peritoneal tuberculosis is dependent upon extension of the tubercular inflammation from adjacent organs, or to

direct infection by means of the bacilli circulating with the blood. Phillip's pathological studies showed that of 107 cases of tubercular peritonitis, the lungs were involved in 99, the pleura also in 60, and the bowel in 80. The frequency of intestinal invasion by tubercle is well known. The serosa becomes quickly involved, but this involvement may remain strictly localized, and may undergo spontaneous resolution if the original source of infection, the intestinal lesion, cicatrizes, as autopsy findings show that it frequently does. When, however, the peritoneal involvement comes from a large organ, and is extensive, it is as difficult to conceive the rationale of spontaneous resolution as it is to explain in what way operative procedure, excepting that of total ablation of the disease, can possibly be of the slightest avail. Yet the fact remains that a gratifying percentage of success follows simple opening and intra-abdominal manipulation in cases of tubercular peritonitis.⁷¹

Tait says, with his usual positiveness, that a therapeutic change is effected in the peritoneum itself by a mere opening of the cavity, and calls attention to the distressing thirst which is uniformly produced by opening the cavity only a finger's breadth, but is not seen if the operation stops short of that.

The matter cannot be dismissed so easily, however, but may, perhaps, be better understood by a reference to the circumstances, and the general pathological laws that apply to them.

Cabot⁷² has recently summarized the evidence at present in our possession in regard to the method by which simple laparotomy cures tubercular peritonitis. He calls attention to the fact that Hirschfeld and others have shown that the tubercles actually disappear from surfaces where they have been known to exist, and quotes Van de Warker in reference to the two ways in which the accumulation of ascitic fluid may, perhaps, act to intensify the morbid process; first, through its mechanical irritation by pressure, or by some unexplained irritating quality in its constituents; and, secondly, by acting as a medium for the propagation and distribution of the tubercle ba-

⁷¹University Medical Magazine, November, 1890.

⁷²Papers on Abdominal Surgery, Boston, 1891.

cilli. This explains the effect of the effusion in favoring the spread of the disease, but there still remains to explain the actual disappearance of already existing tubercles, which follows the removal of the effusion. Upon this point, Van de Warker says: "The irritated peritoneum is given a rest, and allows of a process that belongs, *per se*, to tuberculosis, namely, the thickening and induration of the surfaces—an incapsulation—and which, Hegar suggests, may be a stage in spontaneous cure." Cabot thinks "that this suggestion of Hegar's is of the greatest interest, and that it is probable that the rest afforded to the peritoneum is of importance in allowing it to set up its process of induration, and so to resist the advance of the tubercles."

When, however, the ascitic fluid is wholly removed, and the peritoneal surfaces fall together and acquire adhesions, the tubercles are then shut in between the coils of intestine, the omentum and the abdominal wall. They are thus surrounded by tissues in a high degree of activity, which can now throw around them the limiting zone of young cells, and eventually fibrous tissue, which, if the tubercular process is not too far advanced, may effectually resist it and cause it to retrograde, the process being analogous to that which we see imperfectly going on around a cancerous growth.

It rarely happens that the vigorous growth of a cancer is definitely arrested by this effort of the surrounding tissues; for while it is held in check in one direction, it extends itself in many others, and breaks through the comparatively feeble barriers thus opposed to its progress. In tuberculosis, however, we have a process of much less vitality, and which, occurring in younger subjects, is often successfully hemmed in and destroyed by the healthy tissues about.

The conclusions which seem warranted by the foregoing facts and considerations are as follows:

1. There are large numbers of cases of different grades of severity and varying character which *seem* to be benefited by operation alone, some of them by almost any operation.
2. These cases include chiefly epilepsy, certain abdominal tumors, and peritoneal effusions and tubercle, though the im-

provement in the latter is, perhaps, to be explained on general principles.

3. Of the possible factors which, by reason of their constancy, must be considered, anæsthesia seems least likely to have been effective. The other three, viz., psychical influence, relief of tension, reflex action, may enter in varying degrees into the therapeutics of these cases, and taken together, serve to render the occurrence of occasional cures less mysterious.

4. The theory of accident or coincidence scarcely explains the facts satisfactorily.